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Addresses

THE PRESENT STATUS OF THE SURGERY OF THE STOMACH.*

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The triumphs which surgery has achieved over certain diseases of the stomach comprise one of the most useful and gratifying experiences which has crowned the efforts of our profession in the last decade. It has demonstrated anew that, as the hand-maiden of medicine, surgery is ever widening the limits of its helpfulness and adding new luster to its already brilliant achievements.

The stomach is probably the most important viscus in the body from a surgical standpoint. It is more prone to pathologic changes that can be relieved by operation than any other portion of the alimentary tract, save its terminus. Interference with its functions are attended with the most distressing and serious results. The relative safety with which it can be exposed and manipulated goes far to render it attractive for needed surgical exploration. Its thick walls and peritoneal investment make it well adapted to suturing, and wounds and incisions can be closed with ease and security. With the perfection which the details and accessories to surgical work have been brought in other departments, the comparatively recent innovations in the surgery of the stomach have been undertaken with a precision which has not obtained in the opening up of other new fields in the surgical domain. The mortality in the hands of the expert has been so minimized that operation can be consistently advocated for the relief of distress and disability as well as for immediate and remote danger.

The modern surgery of the stomach is not more than four or five years old, and in its more perfected aspect is only half that old. Its results, judged by statistics before that time, are not comparable to its present accomplishments and the oft-repeated reference to its "frightful mortality" should give place to the recognition of its present surprisingly low death-rate. The discussion, relative to operation for stomach lesions now, is similar to that in regard to appendicitis twelve or fifteen years ago. Then only the desperate cases were submitted to operation. It is so now with many stomach cases. This, however, must yield to the logic of results and in a short time the profession generally will advice early operation as they now well-nigh universally do in appendicitis. Improved technic, low mortality and satisfactory end results will inevitably do away with the empirical treatment of occult intractable stomach troubles. Operating-room demonstration of pathology *in vivo* is impressing the easy mechanical relief of these lesions. A closer intimacy with living pathology will instill the lesson which we have learned so well in other portions of the body, where the golden opportunity is no longer permitted to slip away.

The laity, too, will soon become educated on the subject, and will criticise us for allowing a chronic ulcer to go on to perforation or fatal hemorrhage and for permitting cancer to stealthily creep upon its unsuspecting victim without early recognition. They did that with cancer elsewhere, with delayed operations for appendicitis and with the occurrence of puerperal sepsis, and in my opinion the laity had a very strengthening influence in seconding our efforts to prevent these catastrophies.

Penzoldt appeals for a closer union of surgical skill and internal diagnosis, and says it promises more for patients with a stomach trouble than for any other morbid condition. He says:

> It is the duty of every practitioner who has not the fortune to possess the necessary experience for performing these operations to call into consultation a surgeon possessing the necessary skill so soon as the question of any operation arises. Above all, it behooves the physician who practices as a specialist in the domain of stomach and intestinal diseases, and to whom a great number of uncured patients are sent, to come to a definite agreement on the grounds for operation with an experienced surgeon; the unavoidable disadvantages arising from the unnatural division of practice into surgery and medicine may by such a personal union be compensated.

Moreover, he warns physicians that although there may be a good deal of difficulty in acquiring the necessary skill in the diagnosis of stomach diseases, this is far easier than that required to perform the necessary operations, and that if physicians do not co-operate with surgeons the latter will find the means of acquiring the diagnostic skill and do without them. He complains, too, of the "hesitation and faint-heartedness" of many practitioners which he thinks constitute an unjustifiable obstacle to the progress of surgical treatment (Saundby).

Granted the diagnosis, the surgical problem has just begun. The literature abounds in most complete and exhaustive memoirs. Surgical inquiry and activity in this field is everywhere rife. Various methods have been employed. The technic is constantly changing. The ingenuity displayed in the planning of operative methods is really wonderful. The discarding of the unessentials is very striking. Simplification of mechanics and technics seems to be the desideratum. Mayo is working on a new plan in gastro-enterostomy which tends to simplification and, it is believed, to better mechanics. It is not untimely, however, in this presence to invoice the present attitude of advanced professional thought and epitomize the recognized methods of to-day. I will endeavor, therefore, to present some facts which I believe faithfully portray the present status of the surgery of the stomach.

* The address in Surgery before the Mississippi Valley Medical Association, Indianapolis.

The typical indication for operative interference is obstruction of the pylorus from an open or cicatrized ulcer causing dilatation of the stomach with stasis of food. The short-circuiting operation of gastro-enteric anastomosis finds its ideal indication here and has given most beneficial results. It is the *fons et origio* of the present group of drainage operations, as well as other gastric procedures, and is altogether the most perfected and satisfactory employed operative device.

The complications of ulcer requiring operation are (1) perforation and (2) hematemesis of chronic ulcer. Hemorrhage from an acute ulcer is rarely fatal and is usually amenable to dietetic treatment.

It is often the first symptom of acute ulcer, but rarely occurs in that relation to chronic ulcer and makes its advent most often between the first and fifth years of the disease. It occurs in 18 per cent. of all cases (Fenwick), causes death in 8 per cent. of those in which it does occur (Rodman), and is the determining cause of death in from 3 to 5 per cent. of all cases (Welch).

Operation is advised in repeated acute hemorrhage or in constantly recurring small hemorrhages.

Other indications are found in the following groups of cases: (3) Obscure and persistent stomach symptoms with a long history of dyspepsia culminating in hemorrhage, after it has been controlled by medical means and the patient put in the proper condition for operation (Cabot). (4) Cases of chronic intractable dyspepsia even without dilatation which fail to yield to proper medical treatment and are not due to general visceral ptosis.

Waterhouse says that unless definite improvement manifests itself after three months of medical treatment of chronic ulcer or all serious symptoms have not disappeared after six months' treatment the case should be considered one for surgical, rather than for continued medical aid.

Other authors specify operation in cases in which "three" systematic ulcer cures have not cured, and a prominent surgeon facetiously remarks in reference to these cases that operation is contraindicated unless the patient has had as many as nine permanent and complete cures. The greatest desideratum in gastric surgery is operation in the early stages of cancer, and hence in enumerating the indications it may be summarized in the phrase (5) "on suspicion of cancer." A synopsis of the other stomach conditions for which operation is recommended is as follows:

(6) Disabling perigastric adhesions.
(7) Congenital stenosis of pylorus.
(8) Fistula between stomach or pylorus and adjoining organs or even with the surface of the body.
(9) Hour-glass stomach.
(10) Congenital hour-glass stomach (Brooks).
(11) Volvulus.
(12) Tetany due to obstruction and dilation (Cunningham).
(13) Spasm of pylorus (Reichmann's disease).
(14) Subphrenic abscess.
(15) Perforating wounds of stomach.
(16) Non-perforating trauma (Monprofit).
(17) Cirrhosis (Sheldon).
(18) Foreign bodies.

It will be seen that, aside from malignancy, chronic ulcer and its complications furnish most of the indications and the majority of cases. Indeed, it is not impossible that the bulk of cases of inveterate dyspepsia are really due to ulcer. That it is found postmortem so very many more times than it is recognized clinically is a reproach not so much to our diagnostic measures as to our failure to properly apply them.

The necropsy incidence in Philadelphia was 3.15 per cent.; in London, 4.6 per cent.; in Europe, 8.54 per cent. Mikulicz says: "The dangers to life from gastric ulcer is at least not less, but probably far greater than the danger of a complete modern operation." Riegel estimates the mortality at 8 to 10 per cent., Lebert at 10 per cent., Welch at 15 per cent., von Leube at 25 per cent., Debove and Raymond at 50 per cent.

Aside from its immediate and remote mortality (anemia, tuberculosis, malignant degeneration, etc.), the ease, frequency and permanence of cures are greatly overestimated. In a consideration of the permanent cures it must be borne in mind that amelioration of acute symptoms does not necessarily mean an actual cure, and some of the patients so cured may and do die later of perforation, hemorrhage, canceration and other complications, and 40 and 45 per cent., respectively, in two different series of cancer cases represented a good history of preceding ulcer (Mayo and Graham).

As bearing on permanence of cure, Russell studied 89 cases of gastric ulcer, covering a period of 7½ years; 44.7 per cent. were found to be suffering from stomach symptoms at the last report, 14.9 per cent. were having repeated and definite attacks with intervals of immunity, and 29.8 per cent. suffered almost continuous pain. Another group of 6 per cent. could not as yet be classed with the uncured, 44.7 per cent. Contrast this very lame showing to the graphic description and beautiful results of Moynihan:

> Indeed, I do not know any operation in surgery which is more successful or which is attended by better or more striking results than gastro-enterostomy for chronic ulcer of the stomach. A patient, thin, shrunken, cadaverous and gloomy in aspect, who has been chiefly occupied in trying to avoid acute attacks of indigestion or vomiting, whose whole attention is concentrated on his stomach, who considers every article of diet carefully before he takes it and by degrees abandons first this dish and then the other until he is finally reduced to fluids alone, who, indeed, has never conceived that any other question than that of his own health could seriously interest him, a patient, to say the truth, whose whole existence has been ordered and regulated by his stomach, finds, after a gastro-enterostomy has been performed for his chronic ulcer, that he can eat what he likes in any quantity he likes, that he rapidly puts on weight, and that his general sense of well-being is almost beyond belief. From being a misanthrope he becomes an enthusiast and an optimist. I have often wondered with a certain amusement what would have been the result of a timely gastro-enterostomy on Thomas Carlyle. He might have taken to the writing of comedies and threatened the throne of Congreve. And his portrait, twelve months after the operation, viewed side by side with that done by Whistler, would have proved an eloquent advertisement for his surgeon.

The ulcer is recognized at operation by its shot-like feel or when the walls are picked up between the finger and thumb the muscularis does not slip off the mucosa, a milky white spot often denotes its site and the enlarged "sentinel gland" of Lund may be found in the greater or lesser omentum. Very often the thick-based, indurated ulcer is so prominent that "he who runs may read" and is situated at or near the pylorus. The induration or contraction may have caused obstruction and consecutive dilatation.

The first four inches of the duodenum is embryonically, physiologically and surgically a part of the stomach. Duodenal ulcer, therefore, does not differ etiologically from it. It is most frequent in men, and in the fifth decade of life. It occurs often in the professional

classes who live too well and develop hyperchlorhydria. It is characterized by pain an hour before meals or in the early morning hours and relieved by food. Malena is frequent. It is relatively very much more frequent than has been supposed. In a period of 2½ years the Mayos found, out of 231 cases of gastric and duodenal ulcer, the duodenum to be involved 74 times, or 32 per cent. In 42 operations for chronic duodenal ulcer he had only a single death. It is exceedingly prone to perforate and takes place usually in men in the prime of life, with perhaps little or no stomach symptoms. Murphy says perforating duodenal ulcer is practically impossible to diagnose accurately without exploratory laparotomy. As a most remarkable series of cases I will quote Turner, who saved 8 out of 9 cases at St. George's Hospital. They were operated on 4, 5½, 10, 12, 17, 24 and 48 hours, respectively, after onset of symptoms. The only unsuccessful case was operated on the third day, when practically moribund.

D'Arcy Powers gives the following forceful description of a typical example of chronic duodenal ulcer:

> He tells you that he is a martyr to indigestion, and that for months past he has suffered atrocious pain in his stomach, which is relieved by vomiting. He has dieted himself in every possible manner, he has made all kinds of local applications to his abdomen, he has visited all sorts of watering places, and he has gone in vain from one physician to another seeking a cure. Examination shows him to be a mere bag of bones, badly constipated, cold extremities, and a listless, dejected aspect. His abdomen is loose, the subcutaneous veins dilated, and a visible peristalsis from left to right in the epigastric region. Percussion tells you that the stomach is greatly dilated, and it is not very unusual to feel a tumor in the neighborhood of the pylorus or gall bladder, and you question the patient a little more closely. He is sure that he has been suffering for years, for so long, in fact, that he hardly recollects the beginning of his trouble. A few well-directed inquiries may elicit that twenty-five or thirty years ago, when he was a young man, he once or twice brought up a large quantity of blood without serious pain or discomfort, or that he had an illness which no one seemed to know much about. He was treated for gallstones, or appendicitis, or simply for "liver." The attack was painful and kept him in bed, but the exact details have passed from his mind, and for some years he was as healthy a man as ever.
>
> This is a case of duodenal obstruction resulting from cicatrization of an old ulcer, the irritation of which has caused inflammatory thickening in the surrounding parts. How many patients have been allowed to die of such a condition in the belief that they had malignant disease of the stomach no one can tell. But for such patients a gastrojejunostomy holds out the prospect of a speedy and perfect cure.

It is in duodenal or pyloric obstruction that gastroenterostomy finds its most exquisite indication and attains its highest efficiency.

The many various methods for performing gastroenterostomy give a feeling of wonder at the ingenuity displayed. It is probable that the ideal method has not been finally arrived at. The relative safety of the operation even by varying technic is illustrated by Robson's results—over 200 cases, with a mortality of 3.6 per cent. The posterior operation has largely supplanted the anterior, because of the avoidance of the loop around the transverse colon, and the mischief which it caused. The anterior operation is reserved for malignancy where the speediest technic is the best, where the stomach can not or should not be delivered freely, and the operation is palliative in its intent. The Murphy button, to which we owe most of the knowledge we have of gastric and intestinal surgery, can be employed here on account of its rapid insertion.

The McGraw ligature finds its best scope in such cases if an immediate opening is not required. Secondary jejunal ulcer is not likely to occur on account of the absence of HCl.

The vicious circle, which was formerly a *bête noir,* was due to angulation or obstruction by spur-formation. The posterior loop, eight or ten inches long, invites this more than any other method. It rarely occurs with the button, because of the rigidity at the anastomosis, which prevents kinking.

The posterior operation without the loop, with a longitudinal incision from one to three inches from the duodeno-jejunal angle, gives almost complete immunity from the vicious circle. This operation was described by Peterson in Czerny's clinic, has been recently popularized by Moynihan's writings and is practiced by the Mayos, who have come back to it after employing various other and more complicated and elaborate methods, including entero-anastomoses, with occlusion or division of the efferent limb. The essentials of the present perfected posterior operation are: (1) The selection of the very bottom of the stomach (Mayo); (2) the obliquity of the opening from above down and from left to right (Moynihan); (3) the utilization of the jejunum as it drops straight down and at a point where it normally lies in contact with the posterior wall of the stomach with only the mesocolon intervening (Petersen); (4) anastomosis effected with clamps and simple suturing with linen thread.

Peptic ulcer is not so likely to occur because the mucous membrane is better able to protect itself nearer the alkaline biliary and pancreatic openings.

This technic has enabled Moynihan to report 173 operations for benign conditions, with only two deaths. Mayo performed 307 operations by various methods, with 19 deaths (6½ per cent.). In the last 140 there were only four deaths (2 6/7 per cent.), and in the last 80 by practically this method there was only one death. Mayo, for the last two months, has been making the anastomotic opening obliquely from above down and from right to left, instead of vice versa, as in "Moynihan's oblique line." Heretofore great consideration has been shown the line of peristalsis of the stomach, but Cannon and Blake have shown that, no matter where the opening is made, the stomach by its rythmic, milking-like action makes the point of exit the lowest part of a spindle and ejects the food in jet-like movements.

All of our past trouble has been with the jejunal side of the anastomosis and not with the gastric. The right oblique opening is in more harmonious relation to the course of the jejunum at that point than the left oblique and prevents twisting the jejunum out of its right oblique direction into the left oblique.

I have employed this technic in three cases recently, with most ideal results so far.

The more complex methods, like Mumford's and Roux's, while most ingenious, are not believed to be more effectual than the simpler methods above outlined. The Roux method is excellent as a secondary operation when vicious circle has occurred.

The gastro-duodenostomy of Finney seems ideal and makes the pylorus capacious and is at the natural outlet. It is contraindicated where there is a large amount of scar tissue and immobility from extensive adhesions. The mortality reported by Mayo was 6.9 per cent. in 58 cases.

Excision of the favorably situated and apparently

solitary ulcer may be advantageously combined with it. There have recently been proposed a number of modifications of gastro-enterostomy.

1. Maury substitutes for the elastic ligature of McGraw a triangular stitch of twine which is effectual.

2. Gilbert uses a Pean forceps containing a sheathed knife to cut through the juxtaposed stomach and jejunum which are united by a continuous serous suture.

3. Werelius experimentally employed silver wire or thread introduced like McGraw's ligature and made to saw through the two adjacent walls when the suture is half completed.

4. Sato proposes to effect the opening by the application of $AgNO_3$ after the seromuscular coats have been incised and then they are sutured as usual. The lumen is not opened primarily.

A most logical operation for gastric ulcer is that proposed by Rodman, of excising the ulcer-bearing area by a pylorectomy. This stops the possibility of hemorrhage, removes the lesion and cicatrices. This removes also all of the ulcers, as they are usually multiple and situated in the antrum pylori, which is also the cancer site. It removes any co-existing duodenal ulcer in the first two and one-half inches.

There are two classes of cases in stomach surgery that do not give good results: (a) Ulcer with an open pylorus, sometimes allowing the anastomosis to close, and invite the repetition of the ulcer; (b) the neurasthenic, that most-to-be-pitied of all non-fatal diseases. In surgery generally these cases are bug-bears and should be studiously avoided, except in cases of very extreme disability and unmistakable evidence of gross and serious pathology.

The most crying need in all medicine is some means for the early recognition of cancer of the stomach.

The early diagnosis of the other great scourge of mankind—tuberculosis—is satisfactory, but unfortunately there is as yet no radical cure for it.

If it were possible to diagnose gastric cancer in its very incipiency, a very large number could be saved by operation. The anatomic and lymphatic conditions are favorable for an ideally early operation.

Until the magic and immunizing therapy which will convert malignancy into benignancy is discovered, extirpation is our only resource.

One-third of all carcinomata are in the stomach. The average duration of life is nine months. Diagnosis by medical means is usually too late unless it is made by a strong surmise and confirmed by exploratory incision. Laboratory methods are unavailing in the operable period, as no change has taken place in the secretions. Any obscure digestive case, where pernicious anemia is excluded, and especially if HCl is absent, demands exploration. Riegel asserts that better results in gastric cancer will only come when the internist acquires the diagnostic acumen to strongly suspect malignancy and possesses, in addition, the courage necessary to enable him to act on that suspicion before it becomes a certainty. Persistent digestive cases should be watched carefully for a few days or weeks only. If there is progressive but slow development of disordered function with pain or vomiting, impaired secretion, emaciation and especially tumor, the wisdom of prompt exploration should be frankly put before the patient.

Czerny's dictum that the presence of a tumor is too late for operation has been disproved by Korte's experience. Thirty-four out of 38 resections had a tumor. The absence of early obstruction is one reason why symptoms are so illusive, and hence the advent of a tumor is a fortuitous circumstance that by its obstructive symptoms urgently compels diagnosis that should lead to early interference. Nordmann, out of 126 cases, found only one out of four where removal of the tumor was practicable. This is a sad diagnostic commentary.

If exploration proves the condition inoperable, the wound should be closed with buried non-absorbable sutures, and the patient gotten up and out of the hospital at the end of a week. If obstruction is serious, a quick gastro-enterostomy is relatively safe. Robson had only one death in 24 palliative operations. Relief from pain and vomiting is most grateful and life is often prolonged for many months and in a good many instances to a year or longer. The danger of an exploration is not *per se*, but in ill-advised and overzealous efforts to attempt interference in conditions that should be left severely alone.

A writer in the last six months quotes a mortality of 70 per cent. in operations for malignant disease with adhesions and 27 per cent. without adhesions. These figures are tremendously too high and do not represent the possibilities of the modern operation nor the results already obtained which have reduced the death rate from operation to 4 or 5 per cent.

The Mayos in 114 malignant cases had twenty-one deaths, or 18 per cent. There were 63 pylorectomies and partial gastrectomies, with eight deaths, or 13 per cent. The worst cases had only a gastro-enterostomy and the severity caused the high mortality. In the last 41 cases for malignant disease operated in the last twenty-two months the mortality was only 8 per cent.; 25 consecutive, with only one death, 4 per cent. As to ultimate results in 70 cases of resection, four lived more than five years, 9 were still living from one to five years, a number are well after two years, and a majority lived over one year. Of the 16 operated over three years ago, four are living, or 25 per cent.; one is alive and well after four years and ten months. Of Korte's 22 patients who survived the operation, 13 lived from one to five years, 9 were still living from one to five years. Kocher had 45 cases of partial resection since 1898, with mortality 17 per cent., as against 44 per cent. in 52 resections previous to 1898. The strictly operative mortality was really only 5 per cent.; 20 of the 97 were living, 10 having survived more than two years. Petersen, in 18 cases successfully undergoing resection more than three years ago, had 7 alive and 4 had lived twelve, eleven, five and four years, respectively.

The late lamented Mikulicz, who did more than any other contemporaneous European surgeon for the advancement of gastric surgery, obtained a permanent cure or immunity for over three years in 16 per cent., and sadly enough he at last fell a victim to the dread malady for whose alleviation he had done so much. He cheerfully assented to exploration at the hands of Eiselberg, and when it was found inoperable, he recovered and continued undauntedly at his work until the end. Than this there is no greater heroism.

A description of partial gastrectomy is as follows (Mayo):

Step 1. Open the abdomen.

Step 2. Double ligate and divide the gastric artery. Ligate and divide the necessary amount of gastro-hepatic omentum close to the liver, leaving most of its structure attached to the stomach. Double ligate and divide the superior pyloric artery and free the upper inch or more of the duodenum.

Step 3. With the fingers as a guide underneath the pylorus, in the lesser cavity of the peritoneum, ligate the right gastro-

epiploic or gastro-duodenal artery, and progressively tie and cut away the gastro-colic omentum distal to the glands and vessels up to the appropriate point on the greater curvature and here ligate the left gastro-epiploic vessels.

Step 4. Double clamp the duodenum, divide between with the cautery leaving one-fourth inch projection. With a running suture of catgut through the seared stump, the end of the duodenum is closed as the clamp is removed. A purse string suture about the duodenum enables the stump to be inverted. The proximal end of the stomach is double-clamped, along the Mikulicz-Hartmann line, divided with cautery, leaving one-quarter inch in projection.

Suture through the seared stump with a catgut buttonhole suture.

This is again turned in, after removal of the clamp by a continuous silk or Cushing suture.

Step 5. Independent gastro-jejunostomy.

Step 6. Closure of the wound.

Petersen says:

Resection is practiced more than it was because: (1) Resection is not more hazardous than gastro-enterostomy. Twice as many patients die from pneumonia after the latter than after the former operation. The removal of the decomposing cancerous tissue appears to be of great value. (2) The prospect of radical cure is much greater than was thought. The stomach and duodenum must be excised as widely as possible. (3) Even when recurrence takes place, resection prolongs life on an average about nine months, as opposed to the four to five months of its rival.

SCIENCE AND ART IN MEDICINE.

THEIR INFLUENCE ON THE DEVELOPMENT OF MEDICAL THINKING.*

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IS MEDICINE A SCIENCE OR AN ART?

Medical men the world over frequently have to hear the criticism, I might call it the reproach, that medicine is not a pure science, that its methods and its discipline are not sufficiently accurate to merit this term. On the other hand, critics are not wanting among the non-medical public, who argue that medicine is not a perfect art.

Now, what is an art, and what is a science? In a recent address President Ira Remsen[1] attempts to define these terms, and on the authorities there quoted by this versatile educator we might profitably start out by borrowing the interpretations of the terms science and art. One writer says: "The distinction between science and art is that science is a body of principles and deductions to explain the nature of some matter, and art is a body of precepts with practical skill for the completion of some work. Science teaches us to know, and art to do. In art, truth is a means to an end, in science it is the only end. Hence, the practical arts are not to be classed among the sciences." Another writer says: "Science and art may be said to be investigations of truth, but one, science, inquires for the sake of knowledge, the other, art, for the sake of production. Hence, science is more concerned with the higher truths, and art with the lower. Science is never engaged, as art is, in productive application."

These definitions are apparently not equally clear with regard to science and art. With regard to science, they are clearer than with regard to art. Science has for its object the accumulation and systematization of knowledge, the discovery of truth. This part is clear, and also that art is a body of precepts with practical skill for the completion of some work. But it is not clear how truth is only a means to an end in art, and in science it is the only end. Surely, if a truth could be expressed as a precept in as concrete a form in any art as it could be in a pure science, it would be, or at any rate should be, the only end, the only object of the art as well as of the science.

Then the question might arise, What are higher and what are lower truths? In the decision much depends on the individual standpoint of the judge. What is a higher truth for a scientist may be a lower truth for an artist, and *vice versa*. If it is said that in art truth is a means to an end, we have a right to inquire what is meant by the truths of an art? For instance, are counterpoint, thorough base, and harmony the truths of music?

I know of but two individuals in the history of the modern scientific world who, by training and experience, could be considered competent to answer this question, both having been artists and scientists at the same time, of acknowledged ability. One was Hermann von Helmholtz, physicist, physiologist and musician. The other was Theodor von Billroth, anatomist, pathologist, surgeon and musician. Both of these men have given us the benefit of their thinking on the borderland between science and art. Helmholtz, in his "Sensations of Tone," and Billroth, in his "Psychologische Aphorismen über die Musik" (Wer ist Musikalisch). To the student of either of these works seeking information on the questions above propounded, it must soon become evident that an exact and definite distinction between art and science is not always possible; particularly it is not possible in any concrete case. We are, therefore, enabled to meet the critics arguing that medicine is not an exact science nor a perfect art, with the statement that a distinction between these two is by no means possible and that there is much debatable territory between human knowledge and human ability. Medicine did not originate as a science, but by dire force of necessity. For centuries on centuries its treasures were gathered from experience only, and were developed into an art by the genius of its representatives. Professor Remsen[1] was, perhaps, too accurate in attempting to draw a hard and fast line between art and science. Every science is desirous to become an art, and every art tends to become a science. So also medicine. I mean by this that art requires a scientific foundation and that science requires ability to do. In other words, science requires productive application, the power of achievement.

My convictions induce me to differ from my erudite teacher, Professor Remsen. At least, to differ with him in applying the same ideas to medical science as he is disposed to set up for the science of chemistry. In rating the history of the discovery of oxygen and chlorin by Scheele (1774), he lays great stress on what seems to him a fact, that Scheele did not work toward these discoveries with any practical object in view, and, though this work, while it was being done, seemed to be of no utilitarian promise, its value in the light of present-day industry can not be overestimated. It would be very difficult to prove that Scheele worked absolutely oblivious of any practical results that his work might have. It is true that scientific men frequently work from pure love of science, prompted by high ideals and disinterested enthusiasm, but there is often an under-

* Address on occasion of conferring of the degree of doctor of laws (*honoris causa*), St. Johns College, Maryland.

1. "The Age of Science," Science, July 15, 1904.

current of thought which is sometimes discovered in the private correspondence of chemists, that the work they are doing may yet be of utility to their fellow-men, and perhaps profitable to themselves. In medicine, too, we have the history of a large number of unselfish workers. But if they should work purely in following ideals, without any hope of gaining any utilitarian results, they are not medical men in the true sense of the word. Medical science shall and must be useful. A quotation from Cicero is well applicable here: "*Nisi utile est, quod faciamus, stulta est gloria.*" An oft-quoted saying of Bismarck is: "*Die Politik kann nicht im Laboratorium gemacht werden, denn sie hat überall mit dem Menschen zu thun.*" (Politics can not be made in the laboratory; they have everywhere and at all times to deal with the human being.) In an analogous manner one may say of medicine: "Medical science can not be made exclusively in the laboratory; it has always and everywhere to deal with human beings." I said medical science, but I would, perhaps, have been more exact to have said medical art. For science analyzes, it dismembers and disintegrates in order to penetrate into the depths of things, and to study the final microscopic living element, the cell, in its life properties and processes. This is true, for instance, of physiology and anatomy. But art in medicine keeps the whole together, it observes the individual, the human being, in its entirety. Science seeks general laws; art in medicine seeks the personality. The object of all medical science is to help and to heal, and the object of all medical, artistic and scientific thinking is the therapeutic thinking. Scientific facts in medicine may have an absolute value, although they may not be directly useful, but, aside from such an absolute value, the whole art and science for the physician must be concentrated on the desire to aid his patient in regaining health by means of his science and art. Prof. I. Peterson, of Copenhagen, was one of the first to assert: "The attempt to erect the medical clinic exclusively on the achievements of natural science has proven itself to be impossible of execution."

HISTORY OF MEDICINE.

The evolution of medical thinking can best be studied in the history of medicine. From the earliest rudiments among the Egyptians, Romans and Greeks, the first beginning of clinical discipline dates from the Arabic apostles of medicine and the religious medical thinking, which was the custom of the healing monks of the medieval ages, who were the founders of the schools of Salermo and Monte Cassino. A new period begins with Paracelsus, a man who was an excellent chemist for his time, a contemporary of Luther, and based his therapy on a chemical substratum. Paracelsus created the conception of the "*Archeus*," the central ruler of the human organism, which holds all the bodily functions together and regulates them. This idea occurred later in the writings of Georg Stahl, under the name of "*anima*," and even in our time is frequently met with in a disguised form, sometimes under the designation "vital force." Scientific thinking, that is, thinking based on observations of objective facts, began rather late in the history of medicine. Not until the foundation of universities did it meet with appreciation and respect. This was brought about mainly by the great anatomists of Italy, particularly by Andreas Vesalius, a German by birth (Andreas Wesel), but professor in Padua, 1537 to 1544. Then followed Malpighi, Botalli, Harvey, the celebrated discoverer of the circulation of the blood, and eventually Morgagni (1682-1771), the founder of pathologic anatomy.

This brings us to a period in the history of German medicine in which this science began its emancipation from philosophic and purely deductive thinking, to the scientific and inductive method of investigation, including severe criticism and testing of facts by exact proofs and experimental research. At the time the battle began in Germany between philosophic and scientific thinking in medicine, the methods of the natural science had already gained victories in England and France, and a new era of logical scientific thinking had begun under Rokitansky and Skoda in Vienna, but the course of the struggle was most interesting in Germany, particularly in Berlin. It was begun by an intellectual giant of such rare genius and unfailing logic that he might be called the father of exact physiology and medicine in Germany. I speak of Johannes Müller. He was the first to compel the abandonment of the philosophic thinking in medicine, insisting on the methods of the natural sciences, on investigations based on exact facts, on tests by experiment, and on the importance of microscopic investigations. The work of this great master was continued and perfected by two great pupils, Hermann von Helmholtz and Rudolph Virchow. Helmholtz particularly condemned the effects of the volitional thinking of the medical philosophers of his day, accusing them of contempt for exact investigation of the facts. "Natural philosophy in medicine," he says, "aims to explain the phenomena of normal and abnormal life, from the idea of absolutism. It is working toward a false idea of science, in a narrow, incorrect and one-sided appreciation of the deductive methods. It is true it was not only medicine among the sciences which was ensnared in these errors, but in no other science were the evil consequences so evident and did they obstruct progress so effectively as in medicine. The history of medicine, therefore, can claim a very special interest in the history of the development of human thought, for no other history is better adapted to demonstrate that a correct criticism of the sources of our knowledge is practically one of the most important duties of true philosophy." The demands of Helmholtz for exact scientific methods in medicine, when brought into practical execution, succeeded in raising our science to the standard of an exact discipline and brought it into possession of a wealth of solidly grounded facts.

The other great pupil of Johannes Müller, Rudolph Virchow, became the reformer of medicine in another direction. While professor in Würzburg, in 1849-1856, he laid the foundation of his cellular pathology, and later on, in 1856, when he was recalled to Berlin, he continued the work of his great teacher in perfecting the science of pathology and pathologic physiology, based on individual investigations, on experiment and on pathologic anatomy. The conception of a disease became an anatomic conception, through Virchow, but his pathologic anatomy aimed also to fathom the processes of the living body, and to become a beacon light for clinical study, and in that sense was a truly biologic science. For nearly half a century Virchow continued to be the undisputed chief and the greatest authority on the totality of medicine in the civilized world; and it is no exaggeration to say that no other scholar in the history of medicine has exerted a like influence on the thinking of the medical world. As von Leyden says: "He impressed the stamp of his intellect on his time."

This sketch will serve to represent the history of medical thought from the incipiency of medicine as an art to the present day. We are now living in the era of the naturalistic, methodic and anatomic thinking in medi-

cine. What influence has this had on the artistic side of our profession, the clinic?

MODERN CLINICAL METHODS.

It must be emphasized right here that at the time when Helmholtz and Virchow began to be active in Germany, the methods of the natural sciences had already taken root in Paris, Vienna and in England. During the time that pathologic anatomy found its propounders in Cruveilhier and Rokitansky in Paris and Vienna, respectively, and at the time in which the clinic of Paris was under the inspiration of Laënnec and the clinic of Vienna under Auenbrugger and Skoda, the German clinic was still dominated by the philosophic medical thinking. von Leyden states that the language of the clinicians was Latin and that they followed the volitional deductive methods of Leibnitz, Kant and Hegel. The first clinicians were Reil, Berend and Bartels. Reil was a natural philosopher, and Bartels had been a teacher of anatomy in Hildesheim, while the best that could be said of Berend was that he was a "thorough connoisseur of the writings of Hippocrates." Hufeland, a clinician of genius and influence, who followed these men, showed "*Wes Geistes Kind*" he was by corresponding with the philosopher Kant on his work concerning "Makrobiotik," and expressed himself disparagingly concerning the new diagnostic methods of auscultation and percussion.

But, in 1844, a contemporary of Johannes Müller was called to Berlin, and to this clinician, Lucas Schönlein, is due the credit of having replaced the Latin by the German language in clinical teaching. He brought about the appointment of the very able younger clinicians, H. Simon, Remak and L. Traube. With these men began the methods of exact physical examination of patients. Traube particularly was a master of diagnostic methods.

But when we look to the development of internal therapeutics at this stage of advanced clinical methods in Germany, it is discovered that the attempt to base therapeutics on pathology and diagnosis had failed. Therapeutic nihilism prevailed at Vienna, and the best that could be said of Berlin was that it worshipped the expectant plans of treatment. It took many years to impress on the clinician what now seems to be acknowledged a self-evident fact, that the only object of medicine is to help and to heal, and after the highly interesting evolution of the purely scientific part of medicine, briefly outlined in the preceding sketch, reformers were needed to emphasize again and again that, in addition to a science, medicine was also an art. Peter Krukenberg, a distinguished clinician of Halle, stated this in the following words: "Medical treatment, that is, therapeutics, is and will always remain an art." This conception of the clinical duties and responsibilities of medicine has been designated by Prof. I. Peterson[2] as "modern Hippocratism." The ultimate object of all medical studying is to help and to heal. The peculiar problem of the physician is not so much the disease, but the diseased patient; and the significance and importance of medicine is to be sought in this object, to protect the highest possessions of human beings, namely, life and health.

RECENT ADVANCES IN MEDICAL ART.

A brief résumé of the advances in the art of applied methods of healing will give some idea of the progress that has been made in our art during the last two decades. I will begin with three methods of discipline not as a rule classed among the applied therapeutics in the ordinary sense of the term. I mean, first, the physical methods of treatment; secondly, the treatment by diet, and, thirdly, the treatment by the art of nursing and the direct attention to the comfort of the sick.

Concerning the physical methods of treatment, I may say that, while they are by no means new, they have received such admirable and utilitarian additions and developments that modern physical methods of treatment almost constitute a new branch of applied therapeutics. The treatment by baths and water in general, balneology and hydrotherapy, the treatment by exercise and special apparatus for the correction and passive and active motion of diseased muscles, joints and bones, by gymnastics and massage. The wealth of methods by which electricity can be applied, and photo- as well as heliotherapy, the therapeutic applications of different kinds of light, has been endowed with such an abundance of new apparatus and methods that almost each one of them requires a specialist for their perfect application.

The treatment by diet has been placed on the safe and sound foundation of the physiology of nutrition. It has been aptly designated by von Leyden "Ernährungs-Therapie." Not only the selection of the quality and quantity of the food, but the manner of its preparation, the cooking, has received attention of medical men, particularly those whose attention is concentrated on diseases of metabolism and of the digestive organs. There are probably few healing methods by which more permanent good can be accomplished in the diseases just mentioned than by a scientific method of dietetic principles. It is much to be regretted that the art of cooking has not yet been universally admitted as an integral part of the curriculum in schools for girls and young ladies. It is unfortunate that in our well-to-do and even in the middle classes cooking is considered a humiliating occupation, a thing in which the modern housewife takes but a very superficial interest, leaving it, in the great majority of cases, to the cook whose experience and ability is a very variable quantity. The health of our people depends largely on the products of the kitchen, and the work of the kitchen is just as ennobling and honorable as any other work in any other walk of life. Cooking should be taught in every nurses' training school; and this brings me to speak of the art of nursing, the direct and immediate service toward the comfort of the sick patient.

Nursing constitutes the ethical factor in the vocation of the physician. It is that part of the applied art of medicine which gives it the character of devotion to suffering humanity, and which invests the physician with the reputation of sympathy and love for his fellowmen and women. Nursing is that branch of applied therapeutics in which our sisters, wives and mothers can join hands with the physician. It is individual and personal, it is the tie which binds the personality and individuality of the physician with that of the patient. Attention to the comfort of the patient and efforts at the widest application of the art of nursing afford also a common ground for two other much to be desired objects of our art: first, to secure for it the greatest possible support from philanthropic individuals and from the state and nation, and, secondly, to unite the more and more digressive specialties in medicine on the common ground of relief to human suffering. Here we have a tendency in which our claims for philanthropic and state support find a real and enduring sentiment and justification. For we can not claim this support for

2. Verhandl. d. Congres f. i. Medicin, 1899.

medicine as a science alone, but we can claim it for medicine as an art. For it is not exclusively the sciences which secure the blessings to the vocation of the physician, but it is the devotion to the relief of suffering, the readiness to help, the sympathy and the kindness of heart.

Right here a word of caution will not be amiss in reference to the ultrabacteriologic doctrines of the causation of disease and their influence on the treatment of the sick. This caution has already been expressed by Prof. O. Rosenbach, of Berlin, viz., we must not let any possible fear of contagion convert our sympathy and love for the patient into fear of the patient. It can not be denied that from time to time a physician or a nurse may contract a disease from the patient. There is no doubt in my mind, however, that for every one of such cases of direct infection there are ten others in which nurses and physicians have actually been protected from the disease by virtue of their very intercourse with the patient. Acording to the ingenious theory of Ehrlich, very slight infection, sometimes scarcely noticeable by symptoms, may actually immunize an individual against a severe attack of that disease. It has been known to me, for instance, that a family in which there was a typical case of typhoid fever, the blood of the remaining members of the family gave the Widal reaction, yet to all appearances they were in a perfectly healthy condition. The antibodies were being produced in their circulation and tissue cells, preserving them from a severe attack of typhoid fever, not only for the time being, but doubtless for a long time to come, and all this without even getting sick. Therefore, such experiences have led me to agree with Rosenbach in the opinion that intercourse with patients suffering with infectious diseases, especially with light attacks, may be able to protect and immunize the nurse and physician against infection. This does not by any means signify that the ordinary precautions against infection can be thrown to the winds. It is mentioned merely to strengthen the nurse in her devotion to duty and to avoid thwarting of her efforts by fear of contagion.

RECENT PHARMACOLOGY.

After the physical methods of treatment which I have mentioned, those offered by pharmacology rank next in importance. The products of the pharmacist and physiologic chemist have much enriched the armamentarium of the physician. Many new antipyretics have been brought out, medicines have been manufactured in a purer form, and older medicaments of approved value have been changed to a more pleasant form. New and useful medicaments for the production of sleep and the lessening of pain have been brought out. I greet it as a specially valuable advance that several remedies for the relief of pain, which hitherto could only be taken internally, and though very useful for the disease under treatment, yet frequently disarranged the digestive apparatus, can now be effectively administered externally through the skin. It has thus been found that very effective preparations of salicylic acid can be brought into a form which, when brought on the skin, will be so rapidly absorbed that the reaction for salicyluric acid can be discovered in the urine within half an hour of the external application. The art of general and local anesthesia has experienced wonderful improvements in apparatus, technic and combination of agents.

Bacteriology has not only brought fertile ideas and facts into the science of pathology, but has opened an inexhaustible field for therapeutics. The discovery of the cure for hydrophobia and anthrax by Louis Pasteur and the discovery of tuberculin by Koch was soon followed by the antitoxic serum for diphtheria and tetanus by von Behring. In connection with these glorious achievements, serum-therapy began to develop as one of the methods of applied therapeutics. It is true that of the many serums thus far prepared only that for diphtheria and that for tetanus have proved generally useful. The fact that the cholera, plague, typhoid, scarlatina, antistreptococcus and rheumatic serums have so far not proved as effective as those previously mentioned need not discourage further efforts to perfect them.

The explanation of the difficulties of preparing effective serums is given by Paul Ehrlich in his ingenious theory on immunity which has brought the complicated phenomena of immunity nearer to our understanding. The study of the effect of bacteria on the human organism has led to the discovery of the protective substances of the blood, of the toxins and antitoxins, of agglutinins and precipitins, of the cytolysins. It is impossible here to enter on the consideration of that most wonderful and stimulating of modern medical hypotheses on immunity which has been developed by the genius of Ehrlich.[3]

I desire to call attention to a probable outcome of these studies on immunity, to which I have elsewhere referred[4] concerning the rôle of intracellular catalytic processes in the pathogenesis of malignant neoplasms. If it be possible so to adapt the blood of an animal to a particular form of cell that its serum shall become specifically destructive of these cells, we have here a possibility for the preparation of serums which will be effective in restricting the growth and perhaps of locally destroying malignant and other tumors. My own studies on the transplantation of malignant tumors lead me to believe that, with a fuller knowledge of cytolysis, the outlook for such serums will be more promising.

Closely associated to serum therapy is the treatment of disease by extract of animal organs, which is gaining more and more in definiteness and exactness of application. Perhaps the most interesting of these substances is the active principle of the adrenal bodies, epinephrin, first isolated by John Abel of Baltimore. Thyroiodin and spermin belong to this class of remedies.

The astounding chemical versatility of the cells of the body, as evidenced in the production of such substances, and the immune bodies to which I have referred before, has forced on us a conception of the cell household as a complicated chemical laboratorium. Prof. Franz Hofmeister, of Strassburg, in his essay, "Die Chemische Organization der Zelle," conceives the cell as executing its work by manifold enzymes, each working alone in a special little cell compartment. Thus we have a biochemical conception of the cell processes. This is analogous to the conception of Ehrlich, on which he has built his side-chain theory of immunity. Benedict, on the other hand, Jacques Loeb, and perhaps Wilhelm Ostwald of Leipzig, have developed the biomechanical conception of the cell's work. Virchow's conception was, in principle, a purely anatomic one. Thus we have many varied conceptions of the manner and means by which the cell performs its regular and irregular processes. Though apparently widely digressing, it is encouraging to observe how many of the more important of the results of

3. Aschoff, Ehrlich's Seitenkettentheorie, etc., Zeitschr. f. Allgemeine Physiologie, vol. i, No. 3, 1902; also Wm. H. Welch, the Huxley Lectures on Immunity, Science, Nov. 21 and 28, 1902; and A Résumé of Recent Researches Relating to Immunity, by T. Mitchell Prudden, N. Y. Med. Record, Feb. 14, 1903.

4. Amer. Jour. of Med. Sci., April, 1903.

the biochemical, biomechanic, and the purely anatomic methods of thinking, concerning the cell, are beginning to overlap and even to agree with each other.

SUBJECTIVE AND OBJECTIVE METHODS IN RESEARCH.

It might be argued that methods of thinking can not develop a science in themselves. This is true, for thinking should always be linked with observation and experiment. But, on the other hand, neither observation nor experiment alone can make a science. The formation of conceptions, however, from hardened facts of observation, and logical deductions of experiments, can form and develop a science. Unfortunately for our present methods of advancing medical knowledge, experiment alone has usurped the entire machinery of medical progress, and observation, as well as medical thinking, have been pushed to the background. It can not be sufficiently emphasized at the present time to use the words of Socrates, that "the conception is the fundamental condition of apperception and understanding," and Plato says of the sophists, "In the absence of a correct conception, they hold a learned discourse on the ass, when they mean the horse."

Very regrettable delays and even reverses in the progress of medicine have been experienced by the fact that one or other observer or investigator attempted to build his road into the unknown territory exclusively on one of the methods above outlined, namely, medical thinking, or observation, or experiment. One has criticized the value of thinking, the purely subjective method, another finds fault with the method of observation, a third applies his restrictions to the method of experiment, the purely objective method. This has resulted in an accumulation of a vast amount of scientific building blocks, but there is no coherent complete architecture in the modern science of medicine, and this is at least in part due to the perfectly unnatural separation of the three methods of attempting medical progress. It is very rare to find in modern medical literature even an attempt at a complete scientific plan, and this is largely explained by the fear of most investigators to use the method of medical thinking, or the subjective method, in association with the objective method. Martius (Pathogenetische Grundgedanken) says: "It is a curious thing that the more scientific, the more exact the method of an investigation in medicine, the more inimical to thinking are its advocates." This is, indeed, curious. Why should exactness of a method be associated with hostility to our subjective powers of research, the power of thinking, as a help for the solution of medical problems. Darwin, Häckell, Julius Robert Mayer, and Helmholtz were not only great investigators, but even greater thinkers. The century that produced steam railroads and the electric light gave us the law of conservation of energy by Mayer, and this law, probably the greatest discovery of the nineteenth century, is proclaimed by those most competent to judge to be the fruit of a purely thinking act, and that the experiment attached thereto was a sequence to the thought. Investigators who pursue objective methods of research, based on experiment alone, pride themselves on their exactness in methods. Exactness and accuracy constitute, in the opinion of the experimentalist, the only and the most logical measures of correctness. But what is this exactness, the painful application of units of measurement, of units of weight, of instruments of precision, of accurately controlled conditions of arrangement in the experiment? What is all this exactness but the translation of a frequently very complicated act of thinking into manipulations of science? The thought preceded the experiment. The subjective preceded the objective method.

J. P. Pawlow,[5] most scholarly of Russian physiologists, attacks the adherents of vitalism and animism in physiology in a recent contribution. These terms, vitalism and animism, refer to the tendency to return to the older conceptions in physiology, which attributed the phenomena and processes of life to a "vital force," the "archeus" of Paracelsus and the "anima" of George Stahl, a something which was not explainable by the laws of chemistry or physics. The application of chemistry and physics to physiology has enabled us to understand a great many of the processes of life, and to explain them on a purely chemical or physical basis. But some of the clearest thinkers in physiology admit that many of the processes of life can not be explained on such a basis, and they begin to favor views attributing such life phenomena to a special energy in the living substance (neovitalism). They who favor the vitalistic and animistic aspects of physiology are apt to confuse the standpoint of the investigator of natural science with that of the philosopher. The objective investigator has hitherto accomplished his most far-reaching results by the study and comparison of objective facts, during which he ignored questions concerning the inner subjective nature and the fundamental principle underlying the thing investigated. The philosopher, however, embodies the tendency toward synthesis of thought, and in attempting this he begins by a fusion of objective and subjective phenomena. For the investigator everything depends on the objectivity of the method. This gives the possibility of finding solid and unbreakable facts and principles. This is the view of Pawlow. In my opinion, subjective and objective methods of investigation are inseparable. Even where the investigator believes himself to be purely objective in his methods, he is unconsciously and unavoidably subjective, because the objective accuracy and precision of his methods represent but a translation, an outward projection, of his own subjective train of thoughts, and when his objective facts are established they must again be linked and amalgamated into his own thinking, or that of others, in order to be of value for the progress of knowledge.

DIFFERENCE BETWEEN TRUTH AND FACTS.

We are living in a period in the history of medicine in which the experimental tendency has gained supremacy over speculative philosophy in medicine. But we are in the possession of such an enormous amount of new material and facts, which by additional experiments is daily increasing, that the new facts frequently must be allowed to remain unused, and are, for the time being, of no assistance in the advancement of our science. In this connection, I must again repeat what I have emphasized in the preface of the second volume of my work on "Diseases of the Intestines," namely, the difference between truth and mere facts. These two are often, unfortunately, considered synonymous. Facts are little truths that our senses are capable for the present of comprehending; but back of, and beyond these facts, later experience often reveals the higher and greater truth. An experimental fact which to-day seems absolutely disconnected and, therefore, without meaning may to-morrow, when viewed in another light, suddenly assume a far-reaching significance and importance. No new fact of experience or experiment, be it

5. "Psychische Erregung der Specheldrüsen" (Ergebnisse d. Physiologie), 3d year, vol. I, p. 177.

at present apparently ever so remote from practical bearing, need be considered worthless, provided it is correct. It may be allowed to rest as raw material for a time, but it is probable that in another association it may acquire an importance which we did not anticipate.

But this I must emphasize, that an isolated, disconnected fact of experience or experiment has, for the time being, no significance for the progress of medicine. This significance comes only, then, when we can arrange and fix this fact into the already existing and firmly established architecture of our knowledge. There exists a danger in overrating the value of single facts of experience and experiment. Individual facts discovered this way are accumulating to such an extent that we are completely submerged under an ocean of experimental results, and the intellectual interpretation which fits them into the synthetic structure of our science is missing. Physicians who are not participants in experimental undertakings feel very painfully this absence of the connecting link between an enormous number of new acquisitions which, though experimental, are in a sense empiric. This is also true of the experimental acquisitions in bacteriologic as well as biochemic domains. In the eighteenth and during the first part of the nineteenth century medicine was comparable to a sterile unproductive heath, in which some evil spirits drove about the speculating medical philosophers in a circle. Now we have gotten into an overfruitful swamp or jungle in which the facts grow so luxuriantly that they threaten to smother our thinking powers. The tendency of all laboratories is to bring out new facts. Let us have all of them if it must be, but what we need as much, if not more than new facts, are master minds who will instruct us in the interpretation of these and old facts, and give them a meaning and value by fitting them into the synthetic structure of physiology and medicine. Martius compares modern medicine to a sense-confusing concert, and what is needed is a disciplinarian to instruct us concerning the leading motives, to seek the familiar law in the revealed wonders of the present time.

Aber im stillen Gemach entwirft bedeutende Zirkel
Sinnend der Weise, beschleicht forschend den Schaffenden Geist,
Prüft der Stoffe Gewalt, der Magnete Hassen und Lieben,
Folgt durch die Lüft edem Klang, folgt durch der Aether dem Strahl
Sucht das vertraute Gesetz in des Zufalls grausenden Wundern,
Sucht den Ruhenden Pol in der Erscheinungen Flucht.

—SCHILLER.

The Passing of the Fijian.—The *British Medical Journal* states that the total population of the Fiji Islands is 121,773, according to the Colonial Office report, an increase of about 2,000 on the numbers of the last census in March, 1901. Of these, the pure-blood Fijians number 90,063, from which it appears that there has been the lamentable decrease in this short period of three years and a half of no less than 4,334. Most of this was due to a severe epidemic of measles in 1903, in which year the natives decreased by 2,481. In 1904 the decrease was 840, and it would seem as if the native race has been slowly but steadily disappearing ever since the terrible epidemic of measles in 1875, when over 40,000 are believed to have perished. The native death rate was 48.90 per mille last year, as against a white death rate of 15.25, and this with no epidemics and with a birth rate of nearly 40. The report does not comment on this high mortality which has been so long existent, but something might surely be done to ameliorate such conditions, though "native superstition and obstinacy" are represented as militating considerably against the measures lately taken to stamp out yaws.

Original Articles

CHORIONEPITHELIOMATOUS PROLIFERATIONS IN TERATOMATA,

ESPECIALLY IN THOSE OF THE TESTICLE; WITH THREE NEW CASES.*

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I. INTRODUCTION.

I. GENERAL REMARKS.

In recent years a peculiar form of tumor, known as chorionepithelioma, has been noted in connection with pregnancy. Since attention has been directed to this growth the reported cases have rapidly multiplied, so that they no longer should be regarded as a pathologic curiosity, but rather as a dangerous neoplasm with which the clinician may be confronted at any time, and which may convert, without warning, an apparently normal pregnancy into a rapidly fatal illness.

Hardly had these tumors become generally known, when renewed and added interest was aroused by the discovery of similar tumors in teratomata of the testicle. The resemblance of these two varieties of growths, though occurring under such diametrically opposite conditions, was too striking long to escape notice. It has been the effort of numerous workers to prove the kinship of chorionepitheliomata connected with pregnancy with those of teratomata.

In order to make clear the fundamental facts known about chorionepitheliomata it will be necessary to define these neoplasms, and the terms employed in describing them, although a more detailed account will be given later.

The chorionic villus, in normal pregnancy, is covered by a double layer of epithelium, of which the basal layer, variously known as the Langhans' cells (from their discoverer) or *Zellschicht* consists of clear polyhedral, mononuclear cells, containing glycogen. The covering layer is composed of larger protoplasmic complexes, giving on section the impression of polynuclear darkly staining sheets. They are known as syncytium. In the uterine musculature certain transitional types, called for convenience sake chorionic wandering cells, are found. In staining properties and general appearance they resemble the syncytium, but in size they are intermediate between the syncytial type and the zellschicht.

These three types of cells, all of fetal derivation, are regularly met with in the normal villous covering of the embryo and collectively may be termed the trophoblast. In the female, malignant tumors, directly continuous with the chorionic villi (often these villi are diseased, hydatid mole) and composed of the three types of cells just described, are known as chorionepitheliomata of pregnancy (Marchand). This chorionepitheliomatous or trophoblastic tissue was considered a distinct variety of tissue, peculiar to pregnancy, just as special as epidermis for instance. When, however, morphologically similar growths were found, quite independent of pregnancy, (in the ovaries of virgins and still more frequently in the testicle) this conception received a rude shock. The teachings of Marchand appeared discredited and, in fact, the so-called English Chorionepithelioma Commission was induced to hand in an opinion declaring that the tumors

* From the Department of Pathology of the College of Physicians and Surgeons, Columbia University.

in question should be classed as decidual sarcomata, as they had been regarded until 1895.

When the derivation of chorionepitheliomatous tumors of pregnancy, however, is compared with that of morphologically similar tumors found in the testicle or elsewhere, a similar derivation can be demonstrated. For the chorionepitheliomata of the testicle were, in most instances, an integral part of a teratoma, and the genesis of teratomata, as will be shown later on, is comparable in many ways with the processes of gestation.

With these preliminary considerations disposed of, the reader is ready to study the series of cases, and the theoretical deductions based on them which led Marchand and others to the interpretations now commonly held.

CHORIONEPITHELIOMA IN THE FEMALE.

Early Cases and Their Interpretation as Sarcomata.—R. Maier[1]* and Sänger[2] are credited with the recognition of chorionepithelioma as a new and distinct variety of tumor. Maier regarded his two cases as a disease of the decidua of pregnancy. Sänger and Chiari-Pfeiffer[3] independently described their cases as malignant metastasising sarcomata of the decidua, without according any share to either epithelial or glandular constituents. Before these authors had called attention to this new field, such tumors probably were classified among the carcinomata or sarcomata of the uterus, as are the three cases of Chiari[4] published in 1877.

Marchand[5] was the first to champion the epithelial nature of chorionepithelioma (unless we except the cases just mentioned, in which the tumors were mistakenly grouped with ordinary carcinoma of the uterus). In his first article he considered the syncytium of maternal origin, and was inclined to regard the simultaneous participation of the fetal ectoderm (the Langhans' cells), with the maternal syncytium as a symbiotic growth. Since then[6] he has leaned more strongly toward the genetic unity of these forms, at first according the possibility of both a maternal as well as a fetal syncytium, and in a still later article,[7] in 1903, going so far as to state that Langhans' cells and syncytium are not only of similar origin but are interchangeably capable of assuming either the one form or the other in response to different functional requirements. R. Spuler[8] had arrived at similar conclusions as to the genetic identity of the two layers in a rather unconvincing study based on the morphologic similarity and transition forms seen in the covering of two hydatid moles; this work has received the support of C. Ruge.[9]

The Relation of Chorionepithelioma and Hydatid Mole.—An intimate but not clearly understood connection between chorionepithelioma, hydatid mole, pregnancy and abortion will be noted in the cases to be described, but at the outset this connection was not correctly interpreted. Especially intimate was the relation to hydatid. According to the statistics of Teacher,[10] based on 188 cases of chorionepithelioma, 74, which is 39 per cent., were known to have had a preceding hydatid. In how many instances the mole was discharged unnoticed can never be determined.

The intimate relationship to hydatid naturally led to renewed study of this growth, and to a change of previously accepted views. Virchow's[11] dictum, which classified hydatids as a myxoma of the placenta in which the stroma played the active rôle, was finally discarded, and again it is Marchand's views[12] which have been fully accepted. Accordingly, the stroma has been relegated to a secondary place, the swollen, translucent appearance being ascribed to hydropic changes. The active rôle is assumed solely by the chorionepithelium, both layers proliferating with undetermined and variable intensity. As observations increased in number, hydatid moles were found, in rare instances, to develop malignant and destructive qualities causing death from metastases (Salowij-Krzyskowski[13]); others produced metastases but showed no really malignant properties, the patients recovering without radical operative measures (cases of Pick,[14] Schlagenhaufer, Case 1[15]).

Morphologic Criteria of Malignancy.—In view of the great practical importance of determining the malignant or benign properties of such growths as soon as observed, numerous authors have searched for some morphologic criteria on which definite prognostic value could be based. Neumann[16] regarded the large syncytial cells, occasionally seen in the stroma or just beneath the epithelium, as signs of malignancy, but Pick, Ruge and others have discredited his work. Various other characteristics, such as the increased size and richness in chromatin of the nuclei of the syncytium (Gottschalk[17]), or the presence of numerous chorionic wandering cells (Ruge[18]), have not stood the test of time, for similar pictures were shown to exist in normal pregnancy (Marchand, Pels-Leusden[19]). All recent writers agree that the morphologic pictures of malignant and non-malignant chorionepithelioma are identical, and that the subsequent course alone can determine the outcome.

This question has again been reopened by von Velits,[20] who not only claims to be able to distinguish spontaneous regression by the microscope, but also sees regressive changes macroscopically! The diminished vitality of the Langhans' cells is supposed to show itself by the absence or lessened number of mitoses; the presence of chorionic wandering cells is taken to be an additional indication of degenerative changes. Hörmann[21] discusses these assumptions of von Velits fully, and convinces the reader that these, like the previously mentioned findings of Neumann and Gottschalk, deserve to be discarded.

In destructive hydatids within the uterus, no difficulty was experienced in showing direct continuity between the chorionectoderm and the advancing tumor cells (Neumann, Gebhard[22]). In metastatic growths, Pick[14] first demonstrated this continuity in a vaginal metastasis of an otherwise benign hydatid; Apfelstedt and Aschoff[23] in a true chorionepithelioma. Veit[24] subsequently published his views on villous emboli in pregnancy, which promised to complete the link in the chain of evidence prepared by the findings of Pick, Apfelstedt and Aschoff. Recently, however, Schmorl[25] has cast a doubt on Veit's conclusions, by observing that only after long and protracted labor, in which much manual trauma has been sustained, do entire villi enter the circulation. In hydatids or eclampsia, if emboli do occur, cells and not villi are transported. This again emphasizes the fact that the cells and not the stroma are the active agents.

Ectopic Chorionepithelioma.—Schmorl[26] reported a case in which, after the complete expulsion of an hydatid, chorionepitheliomatous metastases developed throughout the body, the uterus and tubes, however, showing no changes. These cases, classified under the name of ectopic chorionepithelioma, have multiplied,

* The references to literature will be given at the end of the article next week.

until recently twenty-one were collected by Findley.[27] In many, a previously occurring hydatid, which was either operatively removed or spontaneously expelled, had been noted; in a few a supposedly normal pregnancy or abortion, without observed mole formation, was regarded as the etiologic factor. This would oblige us to assume that the normal fetal placental tissues can be the precursors of such malignant growths. Against such a doctrine Schmorl's work and the so frequently observed preceding placental degeneration bear strong weight. Instances of only partial hydatid change, insufficient to destroy the fetus, or twin pregnancy in which one of the children is normal, the other reduced to an hydatid rest, have been reported (see Marchand). The chorionic changes may be so small in extent as to escape notice, and therefore we should accept only with great reserve cases apparently arising from a completely normal placenta, unless this structure has been subjected to careful examination. As the malignant course develops only subsequently, such complete observation is usually not made.

Increase of the Lutein in Hydatid and Chorionepithelioma.—The discovery of an increase in the lutein of the ovary during the course of hydatid or chorionepitheliomatous growths, led to the conclusion that there might be a causative relationship. Some authors went so far as to consider this hyperplasia, which was found in the form of lutein cysts, as a direct stimulus to the chorion ectoderm, which then developed increased proliferative activity and malignant qualities. A contrary view is expressed by Seitz,[28] who, examining the ovaries of thirty-six women between the second and tenth months of gestation, found lutein cysts and a varying increase of lutein, in addition to that of the corpus luteum, in all but one case. Patellani[29] still more recently reopens the discussion by showing that in a large percentage of chorionepitheliomata the ovaries, in consequence of the lutein hyperplasia, assume a characteristic sausage shape, and undergo marked increase in size, sufficient to prove of diagnostic value. This phase of the question must as yet be considered unsettled.

The specific character of the growth is well illustrated by the decidual changes observed in chorionepithelioma away from the placental site, analogous to those seen in ectopic gestation (Schmorl, Risel,[30] Holzapfel[31]).

The Causes of Chorionepithelioma.—The opinions and theories advanced to account for the causation of chorionepithelioma are almost as varied and numerous as those entertained about the etiology of tumors in general, and may prove a valuable argument against a parasitic origin of carcinoma (Ribbert,[32] Pick[33]). Marchand believes nutritional changes and chemotactic influences at fault, and that the earlier in the course of a pregnancy such abnormal growth begins the more malignant the subsequent course will prove, though originally[34] he inclined to Ribbert's opinion, that a loosening of cells from the general complex afforded the starting point. Veit[35] still regards the maternal uterine tissues as the starting point of the growth, which, according to this author, begins before pregnancy. A somewhat modified view is held by Pfannenstiel,[36] who turns to the endothelium of the maternal decidua for the origin of the tumor.

Death of the fetus, softening of the uterine wall, etc., have all been assigned as possible causes. Schmorl declares, however—and his work is based on weighty arguments—that most likely in every instance a diseased placenta, probably hydatid, has preceded. Of the 158 cases he examined for emboli he found proliferation of the cell emboli in one eclamptic only, who died ten days postpartum. As he has seen similar syncytial changes in inflammations, he is inclined to disregard this case. Of the other cases the emboli were numerous in three cases of hydatid, and in three cases of abortion in which neither uterus nor ovaries had been subjected to examination. In some of these cases the cells appeared to be undergoing active proliferation, giving the picture of an early metastasis of an atypical chorionepithelioma. These observations, however, bring us no nearer the real primary cause of chorionepithelioma than before.

Experimental Work.—Little experimental work has been performed. The placental emboli of Lengemann,[37] Lubarsch[38] and Maximow[39] have shed no light on the subject. Aichel,[40] in dogs, obtained structures similar to hydatids by subjecting parts of the placenta to pressure. Such resemblance appears incomplete, and no observations as to the final outcome of these artificially produced hydatids are on record. Vassmer[41] implanted portions of a chorionepithelioma into the peritoneum of rabbits without result. Birch-Hirschfeld and Gartner[42] were equally unsuccessful with placental tissue introduced into the jugulars of two goats.

For further and fuller accounts of chorionepithelioma of pregnancy the reader is referred to Marchand, Risel, Teacher and Findley.

CHORIONEPITHELIOMA IN TERATOMATA OF THE FEMALE. RECORDED CASES.

Thus far I have dealt solely with those chorionectodermic tumors which showed a distinct relation to pregnancy. Similar tumors have been observed, however, in patients in whom pregnancy could be positively excluded, either through youth or sex. As chorionepitheliomata of the testicle will be discussed in detail later on, only such as have been observed in females will be treated of here. If the case of so-called hydatid mole in a virgin of 12½ years, passed at her fourth menstruation (Bock[43]), were to be regarded as authentic, it would furnish an example of an hydatid on a congenital basis, but as neither the macroscopic or microscopic description is complete or convincing, this case must be discarded entirely.

Lubarsch[44] describes a large retroperitoneal tumor in a girl of 13. The case is incomplete, as the material was obtained at operation and the patient returned to her distant home, no autopsy being permitted. The tumor showed all the characteristics of a chorionepithelioma and we must ascribe its origin to a teratoma of the ovary, unless we accept Risel's view that in spite of the tender years of the patient a pregnancy can not be excluded. Lubarsch himself was inclined to consider the resemblance a result of metaplasia forming a *Doppelgänger* of this type of tumor.

Pick's[45] case of Hedwig R., in which chorionepithelioma was found in a teratoma of the ovary of a child 9 years of age, can not be subjected to a similar imputation. Here the chorionepithelium was in spots in direct continuity with neuroepithelium. In some regions the growth assumed more nearly the typical form of Marchand. Other ectodermal, in addition to mesodermal and entodermal constituents, were also found.

Michel[46] reports an analogous case of "carcinoma" of the ovary, which he offers in support of the non-specific value of such chorionepitheliomatous tumors, but far from agreeing with him, I consider that Pick[47] proves that this tumor is of similar origin as his own case of Hedwig R.[45]

In order to grasp fully the significance of chorionepithelioma in teratomata and to account for their occurrence in connection with these growths, it will be necessary to take a rapid survey of our present views on teratomatous tumors.

THEORETICAL CONSIDERATIONS; AND EMBRYOLOGIC SIGNIFICANCE OF TERATOMATA.

Wilms,[48] in his earlier works believed that true teratomata could be found in the ovary and testicle alone, because he derived them from a *Geschlechteszelle* and considered dermoids elsewhere in the body as genetically distinct. Bonnet[49] regarded the frequent occurrence of teratomata in the male and female generative glands as due to the comparatively large size of the urogenital anlage in the fetus, which would account for the more frequent location of independent blastomeres in this region, but does not entirely preclude their occurrence elsewhere. Traina[50] ascribes it to the exceptionally favorable nutritional conditions which he experimentally determined in the ovary.

Numerous observations of teratomata at other sites, as in the abdomen (where some skeptic might still suspect a hidden connection with the generative glands), and in the thorax and head, are, however, on record. Ekehorn[51] has collected no less than thirty-one cases of mediastinal dermoids. Many of these showed the three fetal layers once demanded as the sign manual of true teratomatous growths. A case of teratoma of the mediastinum with chorionepithelioma has been recorded by Ritchie and will be considered more fully later on. Dermoids and teratomata of the brain, bladder, coccygeal region and liver are also known. We can no longer accept Wilms' first view, which placed the embryoms or teratomata of the ovary or testis in a distinct and separate class. The Marchand-Bonnet theory,[52] which accords a genetic equality to all composite dermoids, embryoms and parasites, is now agreed to by nearly all. Derivation from a blastomore or impregnated pole cell, which at an early stage has been cast out of the complex, will account for the three embryonal layers found in these growths. The earlier the liberation takes place, the more fetus-like and complex will be the resulting growth. Bonnet claims that an almost unbroken line can be traced from the acardiacus amorphus, on the one hand, to teratomata, in which the atypical proliferation has reached so high a degree that apparently simple tumors result. That not all layers need reach an equal degree of development is proved by the solitary tooth found isolated in ovarian stroma (Saxer[53]), and interpreted as an unequally developed teratoma; or the struma colloides ovarii (Pick[54], Walthard[55]), in which one tissue had developed at the expense of the others, either hiding the other constituents, or completely replacing them. Whether we should regard the blastomere or pole cell as the origin of teratomata has never been decided. This point will be touched on later.

The cases of chorionepithelioma occurring in teratomata of the testis are widely scattered in monographic literature, although Risel has collected them to the year 1903. I will therefore briefly present all the available cases, but limit myself to their salient features.

2. *CHORIONEPITHELIOMATA OF THE TESTICLE.*

Nineteen cases of chorionepitheliomata of the testicle have been recorded. Some of these were at first regarded as sarcomata, and have only subsequently been reclassified under this new head. A detailed description of the clinical and morphologic characteristics of these tumors will be found in succeeding sections; in this section the main features of the cases, and such deviations as will prove of special importance in the further discussion, or of special historical interest, alone will be considered.

In all the following cases (with the possible exception of Boestrom's) a primary testicle tumor was noted; and, in all which did not escape subsequent observation, death from metastases occurred within a comparatively short time. Microscopically, the chorionepitheliomatous portions will be found classified as either typical or atypical (see Section V), unless described in detail.

Three French reports, those of Malassez and Monod,[56] Carnot and Marie,[57] and Ch. Dopter,[58] may be grouped together. These authors regarded their cases as sarcoma *angioplastique*, in which tumors, the large syncytial complexes, composed of darkly staining, vacuolated protoplasmic masses with many nuclei, attracted their chief interest. Because of the intimate relationship of the syncytia to the smaller blood vessels, and to extravascular collections of red blood cells, these authors ascribed vaso-formative properties, such as Ranvier had noted in the *taches laiteuses* of the rabbit's omentum, to the syncytium. Malassez recorded only the giant cell structures, but the others also describe clear, polygonal, uninuclear cells in carcinomatous, or alveolar sarcomatous arrangement. None of them either found or looked for teratomatous constituents.

Wlassow[59] added four cases to the literature. The data are incomplete. The major portion of each tumor was composed of clear, polygonal, glycogenic cells (of the Langhans type), arranged as in scirrhus or medullary carcinoma, or alveolar sarcoma. Syncytium was well represented in all. The metastases in Case 1 were typical. Noteworthy is the fact that the syncytium in the splenic metastasis showed a ciliary margin. Cases 3 and 4 contained teratoid portions, in the primary tumors, represented by ectodermal and mesodermal structures (cysts lined with various epithelia, embryonal muscle, cartilage, etc.). Because no entoderm could be found, Wlassow refused to accord an embryonal derivation to these tumors, and though he recognized their resemblance to the chorionepitheliomata of the female he, likewise, disregarded this feature. According to Wlassow the syncytium has a vaso-destructive, not a vaso-formative, function. The classification he adopted was that of a carcinoma *sui generis*, because an actively proliferating mesodermal anlage acted as the connective tissue of the growth. He chose the name of *epithelioma syncyomatodes testiculi*.

Schlagenhaufer[60] gave the first clear expression of the views now generally entertained. He claimed that the tumors in question are developed from teratoma, and are genetically equivalent to the chorionepitheliomata of the female. Going one step further, he assumed that rudimentary fetal membranes, in the teratoma, furnished the actual starting point for the tumor, and as evidence of the probability of a direct chorionic genesis, he cited cases of hydatid-like intravascular growths, discussion of which will be taken up later. The case he reported showed no distinctive features.

Schmorl[61] published two cases. The first was described in greater detail by Steinert;[62] the second was typical, showing both teratomatous and chorionepitheliomatous structures (the latter very limited in extent).

Boestrom's[63] case is noteworthy in that a small brain tumor, operatively removed, proved to be typical chorionepithelioma. Metastases in other parts of the body were of similar constitution, while the testicles were normal (?).

The case published by Steinert[62] is of great theoretical importance, because not only were teratomatous (organoid) structures and chorionepitheliomatous tissues found in the testicle, but also in the metastases present in the retroperitoneal and mediastinal glands, and in the liver.

Steinert proposed three hypotheses to account for the teratomatous metastases: 1, Multiple blastomeres primarily deposited in the organs during early fetal life; 2, numerous blastomeres, in the primary tumor, which later were transported to other regions; 3, undifferentiated cells transported from the primary growth, at so early a stage of their development that they were still capable of producing all three fetal layers. Of these hypotheses the last is most plausible. The first presupposes multiple anlagen with a synchronous development of malignancy at their widely scattered sites; the second requires the assumption of quiescent blastomeres, hidden amid the tumor cells, while the third most nearly approaches our preconceived and more generally accepted ideas of tumor development (Ribbert). In the metastases, the chorionectoderm, in distinction to the other tissues of the teratoma, alone evinces "malignant" properties.

Steinhaus'[64] case deserves no special notice. Teratamatous and chorionepitheliomatous formations both were in evidence.

Risel[50] (p. 145) reported two cases, which show important findings.

The first, in addition to the usual teratomatous and chorionepitheliomatous portions, contains ringlike forms resembling medullary canals of neuroepithelium, which, in one spot, are directly connected and continuous with syncytial masses, and where lining cysts, show complete transitions from ciliated to cubical, or even epidermoid epithelium.

The chief conclusions drawn from this case by Risel are that two forms of embryonal epithelium are here encountered in active proliferation—the chorion epithelium, with all its characteristics, and neuroepithelium, which shows a tendency to form analogues of a medullary tube; secondly, that the transition of cells of chorionepitheliomatous appearance with other epithelial cells, amid other tissues, bears witness to their genetic unity and speaks against their derivation from a special anlage of fetal membranes. He regards them as a special form of the fetal ectoderm, which in this instance has also produced actively proliferating neuroepithelium.

These conclusions agree with those entertained by L. Pick and appear to be fully warranted. Pick has most convincingly demonstrated direct continuity between neuroepithelium and chorionepitheliomatous cells, in his case of ovarian teratoma.

The second case of Risel (p. 151) is incomplete because the primary tumor is lacking. The metastases, with the exception of the prevertebral are typical. In the prevertebral tumor are portions composed of smaller, darker, uninuclear cells, often in ductlike or alveolar arrangement and without the accompanying fibrin and necroses, typical of chorionepithelioma.

According to Risel these areas are derived either from a proliferation of the epithelium of the seminiferous tubules, of the primary growth; or, as is more probable, from some epithelial tissues contained in the primary testicle teratoma (which was not available for examination).

Emanuel[65] reported a case whose distinctive features resembled those more fully discussed in connection with the case of Askanazy.[66] The metastases were typical. The primary growth contained teratomatous formations and chorionepitheliomatous tissue which, in some parts, imitated carcinomatous, in others, papillary configurations.

Von Hansemann's case[67] lacked the primary testicle tumor, which had been previously removed. Noteworthy are the metastases in the aortic glands; in these cysts, with sero-sanguinolent contents lined with cubical and cylindrical epithelium, pointed to the teratoid nature of the primary growth. (These cysts, according to v. Hansemann, in no way resemble the so-called "lymphatic cysts" sometimes found in the lymph glands.) The metastases elsewhere were typical. For the interpretation of these findings, what has been said in connection with Steinert's case applies.

Askanazy[66] reported the case sent to Dr. L. Pick by Dr. Salén of Stockholm. Its importance lies chiefly in the systematic study of the various forms assumed by the Langhans cells. Although some portions of the primary tumor are quite typical, transitions, not only to alveolar arrangement of the Langhans cells, but also to duct-like and complex papillary forms, clothing cyst walls, are described. Askanazy concludes that besides the usual typical and atypical types of Marchand the Langhans cells may assume alveolar sarcomatous, carcinomatous, cystomatous, angiomatous or papilliferous forms. Isolated occurrence of this type of cell in teratomata of the ovary and testicle, simulating simple tumors (epithelioma chorionectodermale in the sense of Pick) can thus be accounted for by an excessive growth of these elements. The chorionepitheliomatous tissue, according to this author, can be identified by its numerous characteristics even when it assumes fantastic or complicated shapes, and moreover, can be directly and unbrokenly traced to simpler forms which correspond to the types laid down by Marchand, and among other constituents contain syncytium, showing a foamy appearance, ciliated margin and a tendency to fibrous transformation.

Scott and Longcope[68] are the only American authors who reported a case of chorionepithelioma in the male. The testicle was undescended, and contained no teratomatous tissue (only cells of the Langhans type); the metastases were typical.

The last case to be mentioned is that of H. Dillman.[69] The testicle contained teratomatous, "adenocarcinomatous" and chorionepitheliomatous structures. The latter were represented only in one very minute area.

A case described by Langhans[70] appears so questionable that I have not included it in the literature. A description of this case, and the metastases of a testicle tumor examined by Eden,[71] which almost positively was a chorionepithelioma, will be found in Risel.[50] Eden's case is too incomplete to be of real value. Historically it is of interest because it influenced the English commission to form a judgment against the fetal origin of chorionepithelioma in the female.

THE AUTHOR'S THREE CASES.

To these nineteen cases collected from the literature I am able to add three additional cases. The first two are from material kindly placed at my disposal by Prof. F. C. Wood, from the collection of St. Luke's Hospital. The first case was operatively removed seven years ago. At the time, the tumor was classified as a sarcoma of the testis. The second was very recently removed, and given to me by Professor Wood with the diagnosis of chorionepithelioma of the testis. The third case is derived from

a tumor of the mediastinum in a patient from the Roosevelt Hospital.

In all these cases the material had been put up in formalin or very weak alcohol, and in no instance was it possible to demonstrate glycogen. Sections were cut by the celloidin method. Besides the routine hematoxylin-eosin staining, picro-acidfuchsin and iron hematoxylin were employed.

CASE 1.—C. P. W., St. Luke's Hospital, operated on Nov. 23, 1897.

History.—The patient was a man 40 years of age. For two years enlargement of one testicle had been noted, the increase being gradual and uniform. Local applications and tapping, at which only a little bloody fluid was withdrawn, proved of no service, but injection of iodin was followed by a marked reduction in size. During the past few months the tumor has again, and more rapidly, increased, and the patient has lost twenty pounds in weight. The tumor was removed. The subsequent history is unknown.

Macroscopic Examination.—The testicle and epididymis are completely fused, forming a mass irregularly quadrilateral in shape, 10 cm. by 10 cm., and 6 to 8 cm. thick. The surface is smooth, with dilated blood vessels showing through the tunica and occasional slight nodular projections. At the upper pole a thick but otherwise normal spermatic cord is found. Its veins are varicose. The color of the entire tumor is a faded greenish-blue from the preservative, in which it has lain for seven years. Sections across the entire growth show several large districts separated by dense, coarse, fibrous septa which converge upward and toward the beginnings of the cord. The largest and most central area has an irregular pitted surface and brownish-gray uniform color. Nearer the cord the tissues are denser, more fibrous, and smooth on the cut surface. At the lower pole the color is more yellowish and mottled yellowish-brown. In almost direct continuity with this portion of the mass is a region of diffuse hemorrhagic appearance which has all the characteristics of the often described "recent thrombotic areas" (Hansemann and others). Small punctate hemorrhages are seen everywhere in this neighborhood. Nowhere are there any indications of cystic structures, bone or cartilage. No testicle substance could be found. Numerous pieces were removed from all parts of the tumor, which was too large for making serial sections.

Microscopic Examination.—The findings are very varied, but certain types of cells in different groupings can be isolated on analysis. The albuginea is normal except for occasional areas of fibrous thickening. From this tunic septa extend into the tumor; the larger strands were already visible macroscopically. By frequent subdivision the strands become thinner and thinner until narrow fibrous bands surround the alveolar portions of the tumor epithelium. No Leydig's cells are seen in the testicle proper; at the beginning of the spermatic cord, which is normal, many of these cells can be observed. The vas is normal. No seminiferous tubules were found.

The macroscopically necrotic areas are formed by a structureless faintly granular mass traversed by bands of fibrin, and occasional areas of degenerating round cells. At the margins of these large areas poorly staining cells of various kinds occur, some well advanced in a degenerative process, others still showing traces of nuclei and cell outline. There are no large or diffuse hemorrhagic areas, but small extra vascular collections of red blood cells are not uncommon. Except in the old fibrous septa no blood vessels of any size appear. Between the tumor alveoli, soon to be described, occasional capillary vessels may be seen, some of which show a more intimate connection with the tumor cells.

1. The epithelial cells are polyhedral, with cytoplasm in spots taking a fairly intense eosin stain, especially in the most actively growing portions, in other parts very light or finely granular and transparent. The cell outline is remarkably sharp and shows the effect of contact pressure. The nuclei are round or oval, have a sharp nuclear membrane, deeply staining chromatin and one or two nucleoli. The size of the cells varies from 10 to 14 microns, that of the nuclei from 8 to 11 microns. The line of demarcation between the fibrous stroma and the tumor cells is very sharp. At the edges of the tumor the advancing cells appear in longer narrow columns, and here and there a few may be seen in the narrow tissue spaces.

2. In some of the alveoli are scattered larger and more deeply staining cells of varied shape, with multiple nuclei. They resemble foreign body giant cells. In other districts enormous protoplasmic masses, reaching 500 to 700 microns in length, and 50 to 100 microns in width, and with very numerous nuclei, are found at the edges of the alveoli, also sending processes between the cells of type 1. These syncytial forms may have a homogeneous, deeply staining protoplasm, but more often a vacuolated and "foamy" appearance predominates. The nuclei vary in size, but on the whole are smaller than those of the main tumor cells, more deeply staining, and with a closer nuclear network. Usually no nucleoli can be distinguished; no mitoses were seen. Fragmentation, pyknosis, vacuolation, and other degenerative nuclear changes are not uncommon. Occasionally giant nuclei of the most bizarre shapes can be found. Where the foamy or vacuolated cytoplasm is present the nuclei show semilunar or other compression or distortion shapes. Within the syncytium or at its edges are cells of type 1, some well preserved, others degenerating, still others showing a nearer approach to the syncytial type by deeper staining of the cytoplasm and indefinite cell outline (Fig. 1).

3. Sometimes arising from the spreading syncytium, at others independent of it, are narrow, elongated cells reaching a length of 20 to 30 microns with most intensely staining elongated nuclei. These cells may be seen within the alveoli, and also advance into the surrounding fibrous tissue. Wherever they are found the cell growth is very active.

4. Transitional cells of very varied size and appearance are seen arranged like the cells in epithelioma of the skin. The alveoli usually show a rounded outline, and almost invariably contain large and numerous syncytial masses. The cells may be but little larger than cells of type 1; others reach three or four times their dimensions and resemble large and irregular cartilage cells. Their protoplasm is uniformly light, their cell outline sharp. Many are found within the syncytium, their outlines being well preserved. The nuclei are light, show much chromatin, nucleoli and a well-marked nuclear membrane. The most diverse sizes and shapes are encountered. Mitoses are rare, but not entirely wanting (Figs. 2 and 3).

The different quantitative arrangement of these constituents gives an extremely varied picture. The syncytial masses usually have large collections of red blood cells in close proximity; some of the blood cells are also found in the vacuoles of the syncytium, which often acts as a boundary to large blood lacunæ. Capillaries are also seen surrounded by cells of type 1, and may end in the blood lakes just referred to. Their endothelium may be preserved, or only partially destroyed, syncytium or cells of the other types forming the boundary.

No glycogen could be demonstrated in the specimen, which had been preserved for seven years in formalin, later in weak alcohol, but the cells of type 1 morphologically were similar to cells containing glycogen.

To sum up, the tumor was composed of an alveolar epithelial growth which showed a tendency to hemorrhages and necrosis. The tumor elements consisted of cells closely resembling Langhans' cells, syncytium, chorionic wandering cells and transitional forms, arranged in some spots as in the typical form of Marchand, but yet in the main the alveolar arrangement predominating. Single fields can be found in which no one could distinguish the picture from that of a chorion-epithelioma of the female. This effect is heightened, where, by chance, a projection of the stroma forms a villous-like figure covered with Langhans' cells and syncytium.

No other ectodermic, no mesodermic or entodermic structures were found.

CASE 2.—R. C., St. Luke's Hospital, admitted March 10, 1905, aged 16 years.

History.—The family and previous history of the patient is negative. Two months ago he noticed that the left testicle was larger than the right one, and it has gradually increased until now it has attained the size of an orange. Until one week ago there was neither pain nor discomfort, but since then the tumor is tender on palpation. For the last two nights a dull testicular pain has prevented sleep. There was no loss of flesh and strength, and no other symptoms.

On examination nothing but the swelling of the testicle was found.

The testicle was removed; the wound healed promptly. The subsequent course will be followed, if possible.

Macroscopic Examination.—The testis and epididymis form a single mass about the size of a goose egg. The tunica is smooth and normal; the cord shows no macroscopic changes. On sections the diffuse hemorrhagic appearance is striking. The hemorrhages have not the "thrombotic" form usually noted, but a more arterial, brighter red, and less even carnified consistence. Large areas show a low papilliform surface such as is seen in recent adherent pericardium. Macroscopically no cysts are noticeable. Here and there the hemorrhages are more compact and typical.

The growth had already been cut into several pieces when it reached me. Numerous blocks were prepared and examined.

Microscopic Examination.—Large areas of fairly normal testicular tissue were found. Some seminiferous tubules appear to be functionating; others, nearer the tumor, are undergoing pressure atrophy, and still others are almost unrecognizable and necrotic where embedded in a granular homogeneous mass. In some spots the active tumor tissue is in fairly close proximity to the tubules, but always separated by a considerable layer of fibrous tissue. Nowhere do the seminiferous tubules show an increased proliferative activity or break through into the surrounding stroma. The stroma and Leydig's cells are considerably and uniformly increased.

The tumor proper is separated from the remaining testicular substance by no distinct capsule, but yet there is everywhere at least some intervening space filled by fibrous or myxomatous tissue.

The teratomatous nature of the growth is unmistakable. The ectoderm is most typically represented by rudimentary skin in one spot. Here both the stratified stratum corneum and the deeper rete Malpighii are plainly shown lining one side of an oblong cavity about 8 mm. long, and shading off into a lower multiple layer of epithelium, which finally becomes cubical and single, dipping down to form two simple glandlike structures and eventually breaking up and diffusely invading the stroma. By means of serial sections a direct connection between the epidermis and the typical papilliferous structures now to be described could be traced, the transition being gradual but unbroken (Fig. 4).

Numerous simple cysts, as well as papilliferous cysts, are lined with epithelium. These epithelial cells are cubical or of irregular polyhedral shape, with sharp angular cell outline and clear cytoplasm. The nuclei are large and oval, have a distinct cell membrane, often one or two nucleoli, and granular chromatin network. Mitoses are common. The size of the cells is fairly uniform, varying between 10 and 14 microns, the nuclei reaching 8 to 12 microns. In many spots the structures are very complex, cysts, true papillæ (shown to be such by serial sections), and rugæ form a bewildering appearance almost similar to that seen in malignant adenoma. On the papillæ the epithelium is often multiple. In numerous places the epithelium invades the stroma, forming cell columns or quite as often assuming a diffuse reticulated distribution. In the neighborhood of hemorrhages or of small blood vessels, the epithelium leaves the main papillæ in an irregular fan-shaped form, the cytoplasm is darker, the nucleus larger, less regular, and the type changes to that of the chorionic wandering cells (Fig. 5). These cells have a nucleus, 10 to 15 microns or more in size, and the cell body may reach as high as 30 microns. These cells abound among the hemorrhagic detritus, and about, or even under, the endothelium of the small vessels, which show incomplete or eroded walls. Among this type of cell numerous smaller and lighter cells similar to those previously described are scattered. No large syncytial masses were found in spite of repeated and thorough search. The epithelium, however, in many regions has a more syncytial appearance due to loss of cell boundaries. About some blood vessels of larger than capillary size, but with very thin walls, the epithelial cells of both types are grouped, so as to give the appearance of a perithelial sarcoma. The cells are closely placed about the vessel, but away from it gradually become further separated into alveolar forms by the connective tissue.

Circular or elongated tubes lined with a high, cylindrical epithelium with small basal nucleus or an occasional goblet cell are found. They have a distinct membrana propria, and one or two circular layers of unstratified muscle surround them. These structures were interpreted as entodermal formations.

The mesoderm is represented by fibrous, fibrosarcomatous and true myxomatous tissue, also by scattered unstriped muscle, and by several islets of cartilage.

Of the well preserved portions of the growth by far the greater part is composed of large irregular alveoli, very similar to the alveoli of carcinoma. The stroma has already been described. In some spots it sends fine fibrils into the alveolus, but on the whole any indication of intercellular substance is wanting.

This case must be interpreted as a teratoma containing all three layers, in which chorionectodermal tissues (in the sense of L. Pick) have undergone active proliferation. The Langhans cells line cysts, cover papillæ, surround blood vessels, and assume more diffuse though never typical alveolar arrangement. Chorionic wandering cells are common; large syncytial formations are not represented. In one spot an unbroken connection between an epidermis-lined cyst and diffusely growing chorionectodermal tissue could be traced.

CASE 3.—N. S., male, aged 21, was admitted to Roosevelt Hospital Sept. 17, 1904; died Oct. 21, 1904.

History.—According to the patient's own account the present illness began three weeks previously with a chill followed by fever. For the last two weeks he has had cough and blood streaked expectoration, with sharp thoracic pain between the shoulder blades, most marked while lying down. There has also been weakness, dyspnea and loss of weight.

On admission the veins of the neck and shoulder of the left side were more dilated than on the right. The heart was displaced slightly downward and to the left. Above the heart was an area of dullness, and a loud systolic murmur could be heard posteriorly at the level of the sixth dorsal vertebra. Anteriorly over the left upper lobe was dullness, bronchial voice, diminished breathing and sibilant and sonorous râles. Similar signs were heard over the right lower lobe posteriorly. The abdomen was distended without the signs of free fluid. The temperature was irregular, hectic, and rose to 104 degrees. On September 29 the patient coughed up half an ounce of pure blood. He died with symptoms of general weakness and dyspnea. On admission the case was diagnosed as one of aortic aneurism; later the diagnosis was changed to that of mediastinal tumor.

An autopsy was performed, but no record kept. Small portions of the lung, liver and necrotic parts of the mediastinal mass were preserved. At no time was any note made of the size of the testicles; presumably they were of normal size.

Macroscopic Examination.—The material from this case consisted of numerous small pieces from the mediastinal mass and nodules from the lung and liver.

The mediastinal growth was of a dark green-brown mottled color, with circular hemorrhagic and necrotic areas of very friable consistency and smooth marble-like surface. The pieces from the lung showed fairly normal lung tissue, which was spongy and contained air. Within these pulmonary tissues irregularly spherical nodules from pea to cherry size were scattered. In color they corresponded to the hemorrhagic

Fig. 1.—Case 1. Tumor of the testicle. To the left is an enormous vacuolated sheet of syncytium. To the right and above is an alveolar collection of Langhans cells surrounded partly by syncytium, which is also found in the center of the alveolus, partly by a fibrous septum. Lower down the syncytium contains isolated Langhans cells, giant nuclei and vacuoles, within which are a few red blood cells.

areas seen in the mediastinal growth, but they were of firmer consistence and less necrotic.

The portions of the liver preserved were of uniform brownish color, and grossly showed no changes. Glisson's capsule appeared thickened. The nodules were similar in size, color and shape to those found in the lung, except in one spot where a larger and more diffuse area was found. This was less sharply demarcated from the surrounding liver tissue and showed advanced areas of necrosis centrally. In close proximity to this region were two nodules, one of pea size, the other nearly as large as a cherry, of totally different nature. Irregularly spherical but traversed by fibrous bands, these tumors were white in color and softer in consistency, showing on section a tendency to project above the surrounding liver. Here there were neither hemorrhages nor necrosis.

Microscopic Examination.—With the exception of the two small liver nodules just mentioned the eight nodules of liver and lung were exactly similar. Their outline was fairly sharp. Centrally, in each, was a large, hemorrhagic area composed of degenerating red blood cells, fibrin, detritus and almost unrecognizable cell material. Peripherally was a cellular area of varying width formed by clear polyhedral epithelial cells strongly similar to those of the Langhans type, with large and typical syncytial masses. The syncytium showed numerous well preserved nuclei, vacuolation and protoplasmic processes. Moderate numbers of transitional types were present. Large and small blood lacunæ abounded near, or surrounded by, the syncytial masses. The arrangement was that of the typical chorionepithelioma of Marchand. The surrounding lung tissue in some portions was normal; in others the alveoli were filled with a pneumonic exudate. In some regions a fibrous septum of considerable thickness, probably antedating the tumor, separated healthy and diseased area. The liver tissues show much bile pigment in all the liver cells. Where the tumor and liver tissue abut the difference in cell types is very distinct. The liver trabeculæ are dark, filled with pigment granules and have a homogeneous appearance. The Langhans cells stand out clear and lighter and show neither pigment granules nor dark coloring. The syncytium also is distinct; its nuclei larger and darker than that of the liver cells; its cytoplasm vacuolated

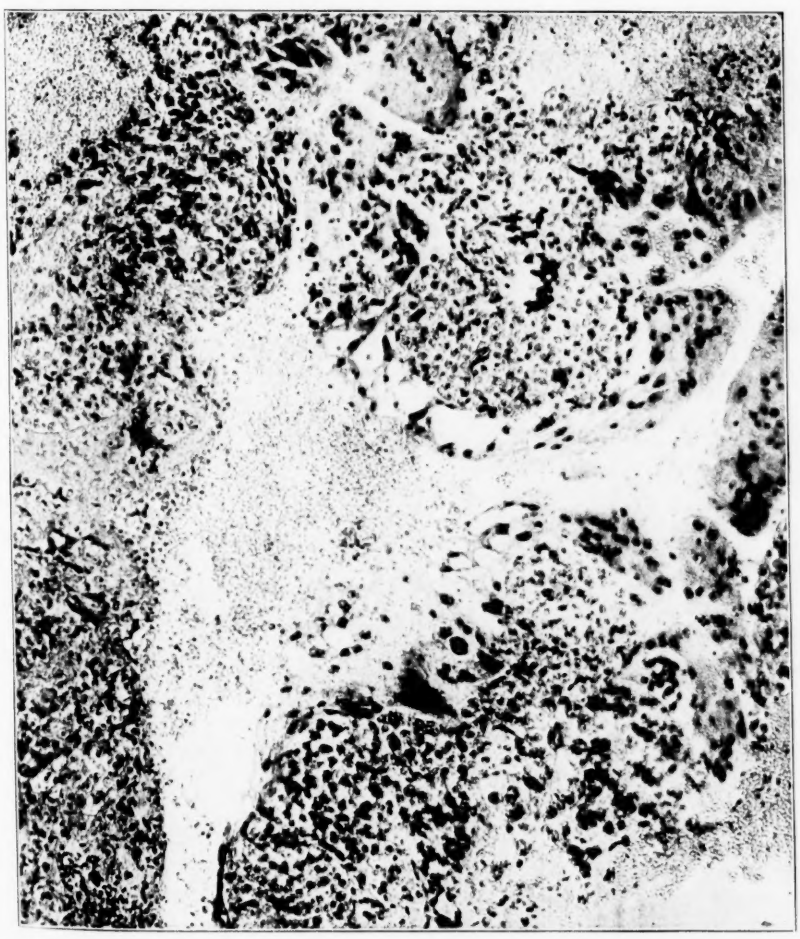

Fig. 2.—Case 1. Tumor of the testicle. Alveolar arrangement of Langhans cells, with intimate relation to large syncytial masses. The syncytium is typically vacuolated and bounds large blood spaces. Transition types abound. At the periphery (left upper corner) are fibrous septa and granular detritus.

Fig. 3.—Case 1. Tumor of the testicle. Syncytium and Langhans cells as in the typical chorionepithelioma of Marchand; at the edges young connective tissue.

and more granular. Although in many places in direct contact, no continuity with liver tissue could be found. The liver cells often show the effect of pressure. There are marks of chronic congestion and Glisson's capsule is thickened. A few outlying vessels are filled with Langhans cells (Fig. 6).

cells. The contrast between the pigmented liver cells and the clear, light tumor constituents is very striking.

The pieces from the mediastinal tumor show formless necrotic tissue.

As the testicles were not examined, and the parts of

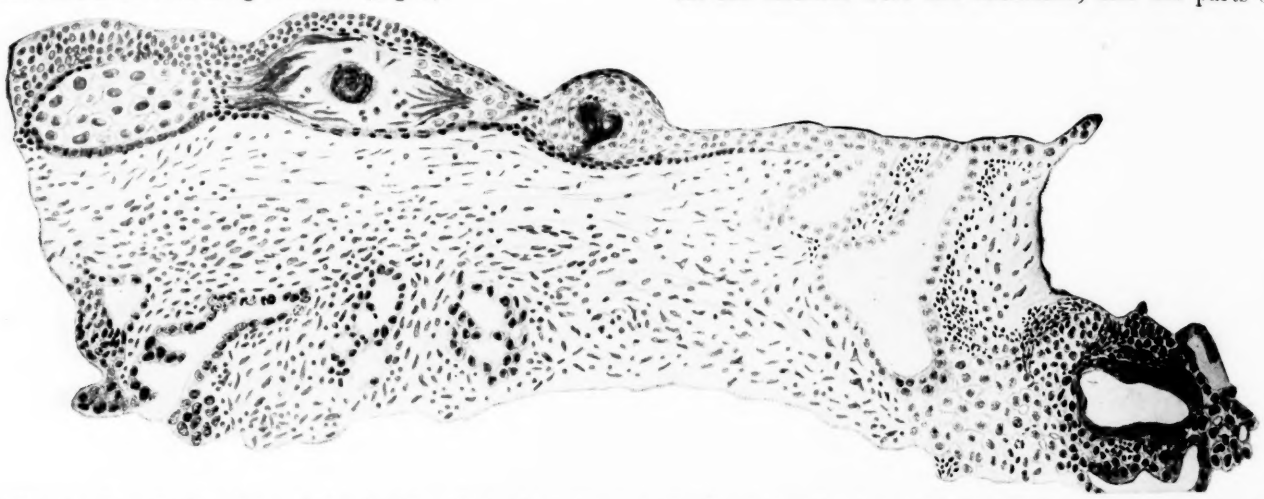

Fig. 4.—Case 2. Teratoma of the testicle. Part of a narrow cavity 8 mm. long is shown. To the left is epidermis with hornified epithelium, merging toward the right into a lower layer of epithelium, which dips down to form two glandlike structures. At the bottom of the deeper gland the epithelium is more darkly staining and fused. In direct continuity is a more alveolar arrangement of the cells, which by unbroken transitions merge into the papilliferous structures, composing the main part of the tumor. To the left and below is one of these papilliferous cavities.

The two whitish metastases are composed of a single type of cell somewhat smaller than those of the zellschicht, with clear though more deeply staining cytoplasm and similar nucleus. They are arranged like the cells of an alveolar sarcoma, the fibrous tissue entering and subdividing in the very large irregular alveoli. At the periphery the cells in small groups invade the liver substance, crowding aside the liver

the mediastinal tumor submitted to the microscope showed only necrosis, the genesis of this tumor can not be cleared up. Very possibly a more careful autopsy might have demonstrated a mediastinal dermoid or teratoma. The metastases are absolutely characteristic of chorionepithelioma.

(To be continued.)

Fig. 5.—Case 2. Teratoma of the testicle. Below, this shows closely aggregated complexes of Langhans cells on a fibrous stroma, (infiltrated with round cells). Above the cells assume the type of choroinic wandering cells and approach a small arteriole (the red blood cells within this are drawn too small) whose wall they invade. At the extreme upper angle is necrotic material and fibrin

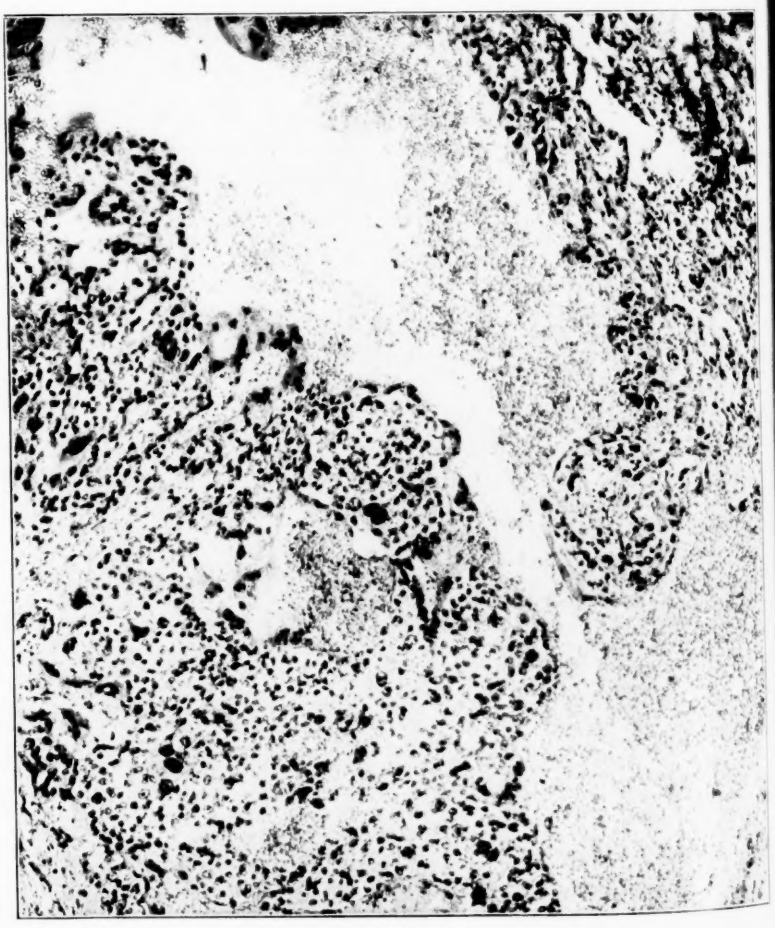

Fig. 6.—Case 3. Liver metastasis. Typical chorionepithelioma. In the center is an enormous blood lake bounded by Langhans cells and syncytium. The liver cells are compressed and contain bile-pigment.

FRACTURES OF THE OLECRANON TREATED BY SUBCUTANEOUS EXARTICULAR WIRING.

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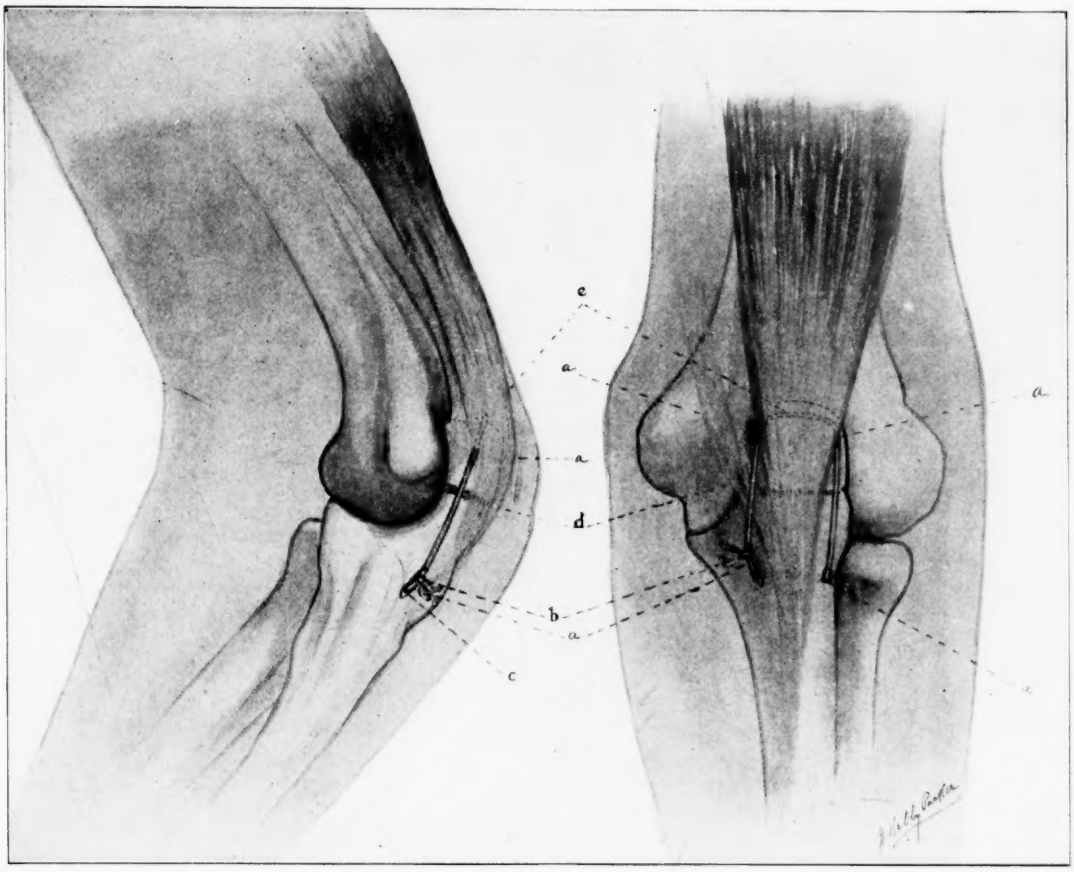
Considering that coaptation of fragments in fractures of the olecranon is not easily obtained by manipulation, the maintenance of the fragments is frequently an impossibility, and the treatment by splints or casts is frequently followed by ankylosis or impairment of motion, I have come to the conclusion that operative treatment is the most advisable. On the other hand, the exposure of the elbow joint appears to me to be dangerous. The open treatment that Lord Lister applied to fractures of the patella, and which is practiced to a great extent today in England, does not appeal to me in the case of fractures of the olecranon. I have always feared to open a joint, even under the greatest aseptic precautions, for we all know that the liabilities of infections in a joint are greater than those in the peritoneum. Therefore, the subcutaneous and exarticular wiring of the olecranon seemed to me the most advisable and the simplest procedure. As far as I have been able to learn from the literature, subcutaneous wiring of the olecranon has not been resorted to by any one else. It is such a simple and practical procedure that I have felt that its publication might be beneficial to the general practitioner and surgeon, who undoubtedly have had unpleasant experiences with such fractures. The following is the history of our case:

History.—Patient, 40 years of age, a police officer, was caught between a wall of an alley and a wagon by a runaway team, May 22, 1905. His right arm was slightly bruised and the right elbow severely hurt. Suffering great pain, he consulted a physician shortly after the accident. Physician put the limb in flexion (about 90 degrees), and applied a plaster-of-paris cast to the elbow, stating that in all probability patient's elbow would remain stiff. For thirty hours after the accident patient had considerable pain.

Examination.—He came to my office on the request of his physician May 23. In accordance with an understanding with his first physician, I removed the cast and examined the arm with the fluoroscope. I found a transverse linear fracture of the olecranon. The olecranon was divided into two halves, which were separated by a distance of three-fourths of an inch. In my opinion, an operation was advised and patient consented. The indication for operation in this case was the great separation of the fragments, the upper fragment being drawn upward by contraction of the triceps. I was convinced that without operative treatment it would be very difficult to coapt the fragments and that a fibrous union would be the result.



Figs. 1 (lateral view) and 2 (posterior view).—Wiring the fragments of the olecranon together. *a*, Incision; *b*, twist or tie of wire; *c*, hole drilled in bone for passage of wire; *d*, fracture; *e*, passage of wire through tendon of triceps.

Operation.—May 24, 1905, a longitudinal incision 1/3 of an inch long was made on the external aspect of the ulna, one-half inch from its articular surface, and tissues were divided to the bone. A smaller incision was made on the corresponding inner side. I perforated the base of the olecranon with an eyelet drill, which ran transversely from outward inward. I threaded the drill with a fine aluminum-bronze wire, drawing it through this transverse canal (Fig. 2). The wire was carried upward under the skin on the inner surface of the elbow and then drawn out through another small incision, one-sixteenth of an inch, made at the level of the apex of the olecranon. The wire was then reinserted and directed transversely from inward outward, passing it through

the tendon of the triceps above the olecranon, and then drawn out to a corresponding outward point through a very small incision similar to that made on the inner side. The wire was again reinserted and pushed downward under the skin until it was finally brought out through the initial external incision. The circle once completed, traction was exerted on the wire until I was sure that the two fragments were in perfect coaptation, the latter being easily and satisfactorily accomplished. The ends of the wire were twisted several times and then divided by scissors close to the bone. By this procedure the skin was incised at four points (Fig. 2), the largest incision being 1/3 of an inch in length.

The coaptation of the fragments was perfectly assured by the traction of the wire. The latter could not slip, the lower part of the wire being inserted through a bony canal, while the upper part passed through the tendon of the triceps and pressed against the bony button of the olecranon (Fig. 1, E). The main advantage of this procedure is, first, that the operation is entirely exarticular, an advantage which, of course, needs no further explanation or praise; and second, passive motion can be instituted immediately after the wiring.

The operation finished, the elbow was put in extension and so maintained by an anterior plaster splint which was fastened by a bandage. Following the operation, the patient had slight pain, which in a few days diminished considerably and finally disappeared on the twelfth day, when patient left the hospital entirely free from pain. The splint was temporarily removed on the third day and each of the following days, passive motion being used, and at the end of four weeks entirely abandoned. The patient has since resumed his work and has had perfect use of his arm and no pain.

Postoperative History.—Patient was thoroughly re-examined Oct. 22, 1905. Form and contour of the right elbow similar to that of the left. The natural obtuse angle formed by the axis of the right arm and forearm is equal to that of the left. Flexion and extension of the right elbow is painless and equal in extent to that of the left elbow. Palpation reveals a perfectly smooth surface; in other words, there is no interruption in the continuity of the periosteum of the olecranon. No pain on active or passive motion. The right elbow joint is functionally normal. Where the wires were twisted the continual mechanical irritation produced a small bursa, which does not inconvenience the patient in the least.

I hope the general practitioner will realize that this procedure is both practical and harmless, and does not require great surgical skill for its performance; furthermore, it gives assurance of a perfect result.

Fig. 1.—Dr. Dock's case of infantile scurvy. The photograph was taken after improvement began, and the front of the thorax does not look so much like that of a cadaver after necropsy as it did in the beginning.

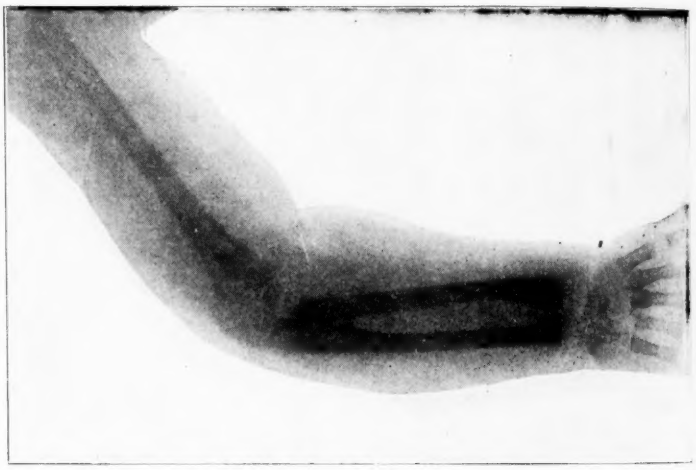


Fig. 2.—Sklagraph showing swollen arm.

Fig. 3.—Sklagraph showing swollen leg and foot.

A CASE OF INFANTILE SCURVY.

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Infantile scurvy is a comparatively rare disease everywhere, though becoming more frequent. Chiefly because of its infrequency it is often unrecognized, and so reports of single cases, even if they add nothing to the real knowledge of the subject, may be useful by calling attention to the existence of the disease when it might otherwise be overlooked. For this reason I report the first case that has been treated in the university hospital.

Summary.—Case of infantile scurvy treated for two months with diagnoses of neuritis and probable anterior poliomyelitis, with sore mouth. Easily recognized as infantile scurvy by ocular proptosis with subcutaneous hemorrhages of the eyelids, characteristic swelling and discoloration of gums, depression of anterior thoracic wall, swelling and tenderness of wrists and ankles; slight rickets, sweating of head; rapid recovery on change of food and use of orange juice.

Patient.—E. B., aged 10 months, admitted to university hospital Oct. 23, 1905. The mother, aged 24, was very small as

a baby, but has always been well since then. She looks well and is of robust frame. The father, a well-to-do farmer, is 26 years old and in good health. The patient, their first child, was born Dec. 26, 1904. The birth was not difficult.

History.—The mother tried to nurse the baby, but after three weeks was obliged to stop. Milk and water, equal parts, sterilized by boiling for one hour, was next used. Barley gruel and milk sugar were added to the milk from the third week. The child vomited curds and was tympanitic, so a change was made, at 5 weeks, to the following preparation: Milk, 10 tablespoonfuls; water, 24 tablespoonfuls; Mellin's food, 4 teaspoonfuls.

As this was not taken well, the Mellin's food was increased and the water lessened, and up to the time the patient came to the hospital she took the following: Milk, 25 tablespoonfuls, water, 7 tablespoonfuls; Mellin's food, 9 teaspoonfuls. The mixture was heated to 165 F. for about ten minutes. The quantity taken at each feeding was rarely more than 3 ounces, and for some time five feedings were given in twenty-four hours.

The weight at birth was 8½ pounds; at 5 months it was 14 pounds; at 8 months, 15½.

Constipation has been the rule, rarely interrupted for a day at a time with as many as three to six stools in a day. In the end of August there was bright red blood in the stools and then for from two to three weeks the stools were almost black, becoming natural only about October 10.

The lower central incisors were cut at six months, without special difficulty. At the end of August the upper central incisors began to appear. At that time it was observed that the baby screamed when her feet were touched. Soon she ceased to use her legs, but there were variations in the degree of this. Then the back became sensitive to touch and she stopped sitting up in the middle of September. Then the arms became quiet, the left almost entirely so. The right arm was only moved to put the thumb in the mouth, where it was kept most of the time. As the upper teeth were slow in coming through the gums were incised. About the last of August the upper gum became swollen, appearing like a blood blister which subsided slightly at times, though the main swelling never disappeared nor became much smaller. The lower gum became swollen after the upper one.

About October 15 the right upper eyelid swelled suddenly. Eye salve was applied. The swelling subsided, but left a bluish red discoloration. The left upper eyelid became swollen October 23, and when admitted the lid was swollen so it did not open, was deep pink and edematous looking. The head has perspired profusely for a long time. There has never been any sign of laryngismus stridulus.

Status Præsens.—October 24: The baby lies with its right index finger in its mouth. Occasionally cries, but cries at once on being disturbed. Is of fair size; weighs 15 pounds. The head is square; anterior fontanelle 38x34 mm.; soft blowing systolic murmur over it. The scalp is sweating slightly.

The right eye is prominent. The upper lid is slightly swollen and shows a pale blue oval discoloration at the upper margin. The left upper eyelid, which was closed yesterday and bright red, is less swollen; pale red; the skin finely wrinkled. The lids open one-eighth inch. The bulbs move naturally; both are very prominent and seem to look down. The conjunctiva is normal.

The rest of the face is slightly puffy, the cheeks flushed, ears pale. There is a scanty eruption of minute red papules in the scalp and on the abdomen, but no petechiæ.

The lower central incisors are about half way through. The gum around them is slightly swollen, reddish purple, the purple most marked close to the teeth. The upper incisors can not be seen. The gum over them is swollen, forming two oblong oval elevations, the right 1 cm., the left 1.5 cm. long. These are dirty red at the bases, blue at the tops, but the extreme tops are broken and appear as ragged dirty-looking ulcers covered with small granulations. The mucosa of the rest of the mouth and pharynx is healthy looking; the tongue is not swollen; has a very thin white coat.

The thorax is of good size. The sternum and costal cartilages are flat and look as if pushed in, forming a ridge running from the nipples to the flanks, parallel to the margin of the ribs, from which the ridge is separated by a shallow groove. The chondrocostal articulations are firm; very slightly swollen. Heart and lungs negative.

The abdomen is below the level of the ribs. Liver and spleen not enlarged. The back is tender, but otherwise negative.

The left arm lies extended; the right thumb is in the mouth and can be moved away without evidences of great tenderness. The wrists and lower fourths of the forearms are swollen; the skin is not tense, but there is a firm swelling seemingly beneath the deep fascia. The hands are emaciated. The thighs and knees are negative. The upper parts of the tibias are not distinctly thickened. The lower thirds of the legs and the ankles are swollen, the skin glossy, and at the same time pitted, like an orange peel, with slight bluish yellow discoloration. The swelling is very firm. Touching the arms and legs causes severe crying, with many tears. The legs and feet are kept extended; no effort is made to move them.

Blood: Reds, 4,000,000; leucocytes, 11,700; hgn., 80 per cent. Differential count (Dr. H. A. Freund): Small lymphocytes, 14.2 per cent.; large lymphocytes, 9 per cent.; polymorphous, 75.2 per cent.; transitional, 0.8 per cent.; eosinophile, 0.4 per cent.; basophile, 0.4 per cent. Few microcytes; many macrocytes; few poikilocytes.

Treatment and Course.—Orange juice was begun as soon as the baby was admitted. It took one ounce of a 25 per cent. mixture very well, apparently liking it, before each feeding. It also took the following milk mixture: Cream, 8 fluid ounces; milk, 1½ fluid ounces; lime water, 1 fluid ounce; water, 9½ fluid ounces; milk sugar, 6¾ drams. Heated at 99.5 C. for twenty minutes; then cooled; 5 ounces every three hours.

October 25: The baby is distinctly better. It looks more intelligent and does not cry as much as before. The swelling is entirely gone from the left eye. The blue spot on the right lid is more distinct. The gums are less swollen and less blue. The wrists are smaller; ankles about as before. The milk was increased to 2 ounces. Mutton broth cooked with potato and carrots was given.

October 26: The appearance is still better. Moves hands and does not complain as much when touched. Ankles very little smaller than before. Food changed to: Cream, 8; milk, 4; otherwise as before.

October 28: Looks much better. Moves left hand freely, also feet. Wrists and ankles are smaller, but the left internal malleolus is still surrounded by considerable swelling. Milk changed to 5 ounces; other ingredients as before.

October 30: General appearance better. Moves all extremities actively. Gums less swollen; lateral upper incisors show through. Eyes, ankles and thorax about the same. While in the hospital the bowels were slightly constipated. The stools were of natural color and well digested. There was a positive test for occult blood (Dr. Cowie) on October 25, 26 and 27; negative afterward. The urine was not obtained, but the napkins showed no traces of blood. The temperature ranged between 101 C. on admission, and 98.6 C., usually between 99 C. and 100 C. Weight 15½ pounds.

Patient was discharged, with full directions for raw milk, milked with as much cleanliness as possible; aërated at once, filtered through cotton and kept on ice.

November 1: Returned for examination. Looks stronger. Moves more than ever before. Does not cry when handled. Discoloration on right eyelid clearing up. Eyes are further back than before. Upper gum is still spongy and red, but improving. Ankles and wrists about as before.

November 7: Patient sat up yesterday alone. Better in every way.

November 10: Examined in clinic. Moves extremities freely and sat up alone to-day. Color good. Discoloration of right eyelid has disappeared. Left eye normal. The eyes are not prominent. The thorax is deeper. The gums are still slightly

swollen and red. Does not take orange juice as well as at first. Is taking 6 fluid ounces of milk in 20 ounces of the mixture. Weighs 16½ pounds. Food changed to cream 8 and milk 7 fluid ounces; other ingredients as before. Broths and gruels were also prescribed.

November 23: For two or three days has not taken food as well as before. Vomited once on the 19th, probably as the result of cathartic medicine. Looks stronger. Moves actively. Wrists are thick; ankles smaller than before. No discoloration. No tenderness. Gums natural; four upper incisors out; three below and fourth almost through. Costal cartilages still show groove, but body is more rounded than before. Advised five meals a day.

REMARKS.

Diagnosis.—Among the points of interest in the case diagnosis takes the first place. Like many similar cases, the true nature of this one was long overlooked. During this time the patient was in care of two physicians, in turn, of considerable experience and more than average ability. Neither had ever seen scurvy at any age, and they had only the usual knowledge of the less common diseases of childhood. But lack of actual observation of a similar case can not be a valid excuse in practical diagnosis. All progress in medicine would stop if it were. The physician first consulted discussed the case with a surgeon, who suggested neuritis without seeing the patient. The other suspected anterior poliomyelitis, but, not feeling certain, referred the patient to me. The chief cause of failure was the lack of a thorough examination, the cause of most faulty diagnoses. This was assisted by a failure to compare the findings with descriptions in text-books on diagnosis and practice.

A literary knowledge of the subject does not alone prevent error. Heubner tells us that in half the undiagnosed cases of infantile scurvy he saw in consultation the physicians in charge had a literary knowledge of the disease. Until I stripped the baby and examined its extremities, its mother and a very experienced and critical grandmother were not aware of the striking alteration in the shape of the thorax and the swellings and discolorations of the extremities. Had an examination been made, the first diagnosis of neuritis must have been given up on account of the absence of objective evidences of that disease and the presence of other features that could not be explained by neuritis alone. Then it would have been necessary to consider the possibilities that have caused error in other cases. Osteomyelitis, so often diagnosed, even to the point of causing operation, could hardly have been suspected in this case. In some, where the swelling has been greater and less symmetrical, only a complete examination and thoughtful differential diagnosis could prevent error. Against rheumatism, the relative constancy of the local lesions, the fact that they were not in the joints, the absence of superficial redness and of distinct fever would have been useful. On the other hand, the sweating of the head, if not considered in all its bearings, and the slight elevation of temperature, might easily confuse the diagnosis in this respect. Against sarcoma, the multiplicity and symmetry of the lesions, and the failure rapidly to increase should suffice. Against syphilis with pseudo-paralysis the condition of the parents, the age of the patient, the condition of the skin and mucous membranes, the absence of joint involvement and the great degree of tenderness, would be decisive. Anterior poliomyelitis was an insufficient diagnosis in view of the physical conditions. There was also no history of the onset of that disease, and the description of the course of the pseudo-paralysis was clear and agreed more with that of scurvy than of infantile paralysis. Rickets would have been a better diagnosis, would have been partially correct, and, if made in time, should have led to a change in diet that would, in all probability, have prevented the full development of infantile scurvy. The case illustrates the importance in all cases of artificially fed infants of looking for rickets and the scurvy so often associated with it.

Critical examination of the mouth should have made it clear that the disease in the gums was not due to the incision, as was supposed, for it was also present in the lower gum that had not been incised. Further study of such anomalies must have led to a correct diagnosis of scurvy.

The proptosis and subcutaneous hemorrhage in the eyelids came on late. Diagnosis made in time should have prevented them. Although the orbital changes are relatively rare, the fact that E. Schlesinger has recently reported a case in which orbital hematoma was the first symptom in a case of infantile scurvy shows the importance of a general knowledge of the process. The article of Schlesinger[1] and that of Irving Snow[2] give a complete résumé of our knowledge of this interesting symptom. In regard to its incidence, the collective investigation of the American Pediatric Society gave only 22 cases out of 379, positively absent in 110. Heubner saw 4 cases out of 65. Barlow, who first described it, has also seen a case in which orbital hematoma was the only symptom. Snow shows the anatomic feature of the condition, a subperiosteal hemorrhage like the process on other bones, and Cohn's report of a case in which the hemorrhage came on suddenly, during a severe crying spell, suggests a traumatic element that is often present in the hemorrhages on the long bones. The successive affection of the two orbits, as in my case, is very frequent.

Etiology and Results of Treatment.—The study of the causal factors in the case reveals nothing new. There is the history, as in most cases, of a monotonous food, composed of a milk mixture that would not seem well adapted to the patient, and yet it seemed to agree fairly well for a longer time than one would have anticipated. The long-continued use of Mellin's food is of interest, but does not give any positive ground for conclusions. It is interesting to observe that severe gastrointestinal disturbance did not occur. The idea that a severe diarrhea or enteritis had been present was entertained by one of the physicians, but was not borne out by the clear and positive descriptions of the relatives nor by the examination of the stools. The bloody stools were certainly the result of the scurvy, without further implication of the intestines.

As in so many cases, we can not say whether the cause here was some qualitative or quantitative alteration of the food elements or some toxic substance, or all combined, in a patient long inappropriately fed.

Some other details of the feeding are interesting. The patient lived on a dairy farm, the herd being made up of Jerseys with a few Holsteins. As I learned later, the milk had undergone official tests and was good in every respect. When I began the treatment I was afraid to use raw milk, fearing the supply on the one hand, the gastrointestinal condition of the patient on the other. I therefore gave orders to Pasteurize the milk at 160 F., but by an error the method then in use in the ward was followed, and the milk was really heated longer than

1. "Zur Symptomatologie der Barlowschen Krankheit," Muench. med. Wochft., Oct. 24, 1905, p. 2073.
2. "Eye Symptoms of Infantile Scurvy," Archives of Pediatrics, August, 1905, p. 576.

before and at a higher temperature. The only differences, then, were in the different source of the milk, an element that can not be analyzed, the withdrawal of the Mellin's food and the use of orange juice. Before anything else was given a distinct improvement was obvious, and recovery occurred while on sterilized milk, orange juice, and a small amount of potato and carrot broth. So rapid an improvement, of course, is not at all uncommon, and the change as soon as the orange juice is given, along with the curious avidity with which my patient took it, like so many others, seems to prove that it contains something much needed by the scorbutic body.

Skiagraphy.—My efforts to get an *x*-ray picture of the affected bones were not successful. It was impossible to make an exposure the first day, when the legs were spontaneously kept still. By the next day there was some motion when the noise and light of the apparatus were perceived, so that it was not possible to make a slow exposure with a soft tube that would show fine differentiation of the soft parts. The pictures, of which my colleague, Mr. V. H. Willey, made a number, show the swellings, as well as the appearances of the bones, but nothing more.

X-ray pictures of infantile scurvy have been published by Ausset, Rotch[3] and Lenndorff.[4] Those of Ausset and Rotch are not very good. Lenndorff's is given in a rather diagrammatic reproduction. The author says there were shadows along the femur and the tibia and fibula, and a clearing up of the bone shadow in all the bones. He explains the findings by assuming that the periosteum had had time to exert its osteogenetic function, a belief that is borne out by postmortem examinations. Lenndorff, however, very properly warns against too much dependence on the skiagraphic diagnosis of infantile scurvy, though it may be of assistance in clearing up some of the anatomic changes.

AN ANTIGONOCOCCUS SERUM EFFECTIVE IN THE TREATMENT OF GONORRHEAL RHEUMATISM.*

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The following communication is intended merely as a preliminary announcement of the preparation of an antigonococcus serum of therapeutic value. It will be followed shortly by an article in which the character and properties of this serum are dealt with in greater detail.

There are several reasons why an antigonococcus serum has not been used heretofore in the treatment of gonorrheal rheumatism. They may be tabulated as follows: First, there is not the slightest indication of an immunity in man to gonorrheal infection acquired by a previous attack; nor in chronic gonorrhea is the individual any the less susceptible to an acute superinfection. Second, there is no well-established case of an infection in animals with gonococcus. Wertheim, by injecting agar and gonococci together into the peritoneal cavity of rabbits, was able to produce a local peritonitis, but not a real infection. Heller's statement that he has produced an ophthalmic gonorrhea in young dogs by injecting gonococci into the anterior chamber of the eye has not been confirmed. Third, it is generally supposed that gonococci can not be induced to grow luxuriantly under artificial conditions. Finally, most authorities agree with Wassermann and Nikolaysen in concluding that animals can not be immunized to the toxin of the gonococcus, as it is embraced within the cells and only diffuses into the surrounding tissues on its death and disintegration. In other words, according to their view, it is an endotoxin, a bacterial protein.

Although there was apparently slight chance of success, at the suggestion of Dr. Rogers I prepared a serum for a patient with gonorrheal rheumatism of some 15 years' standing, who had been treated in every other way without result. We were agreeably surprised to find the serum effective, not only in that case, but also in a high percentage of others in which it has been tried. These cases are fully described in the preceding clinical report by Dr. Rogers.

The culture which was originally employed in producing the serum was isolated from an acute case of gonorrhea in a male, who had not been treated. Gonococci were very numerous in the exudate, principally within the leucocytes. Smears were made from the discharge on petri dishes of ascitic agar. After an incubation of 24 hours, an almost pure culture of very small, transparent colonies appeared. These colonies were composed of small diplococci in every respect identical in morphology, staining reactions and cultural features with the characteristics of gonococci. The micro-organisms were negative to Gram's stain, would not grow on ordinary peptone agar or broth (repeated tests have been made extending over several months), and died out even on ascitic media in a short time. On ascitic agar (equal parts of ascitic fluid and 2 per cent. glycerin agar) the colonies are small and tend to remain separate. At first transparent and with regular edge, after four or five days the center of the colony becomes granular and the edge spreads out thinly and irregularly. All the diplococci have died in from six to eight days. In ascitic broth the length of life is much greater, from thirty to forty days.

For purposes of inoculation, a very satisfactory medium has been found to be a mixture of rich ascitic fluid and slightly acid beef infusion peptone broth in equal parts. Tubes of about 12 c.c. of the mixture are heated to 60 C. for several hours and tested for sterility. To obtain the best results, the temperature of the incubator should be between 36 and 37 C. Gonococci are killed at a relatively low temperature (at from 40 to 41 C., according to Scholtz). After from 18 to 24 hours' incubation, a slight granular growth appears near the surface and along the side of the tube. This slowly increases in amount until, after six days, the medium is well clouded on shaking. Other strains of gonococci which have been used form, after four days, a rather thick and flaky pellicle. In all the strains the growth after a time sinks to the bottom of the culture tube.

Various modifications of the proportion of the ingredients in ascitic broth have been tried, such as the presence and absence of peptone, increase in the amount of albuminous matter and ascitic fluid, but no combination has proved, on the whole, more satisfactory than the one which has been described.

It is interesting to note that the strain of gonococcus which was first used, after being cultivated for over a year on ascitic media, grows fully as well and produces as effective a serum as when first isolated. This is in harmony with the well-known fact that gonococci, iso-

3. Medical News, 1903, vol. ii.
4. Archiv. f. Kinderheilkunde, vol. xxxviii, 1904, p. 160.

* Read before the New York Academy of Medicine, 1905.

lated from chronic cases, have suffered no loss in virulence or growth energy. Two other strains of this organism, which were kindly given to me by Dr. Elser, have been found to give rise to fully as efficient a serum as the original culture. These were isolated from cases of vaginitis.

Large rabbits have been used exclusively in producing the serum. They were inoculated in early stages of the experiments at intervals of three or four days with about 10 c.c. of the entire culture. It has been found, however, that the results are rather more satisfactory if an interval of five or six days elapses between the inoculations. The animals thrive much better if so treated and bleed more freely. Experiments have been carried on with the idea of determining the most suitable age for the cultures used in inoculations. It has been found that both very young cultures, from two to five days, and old cultures, from twenty to thirty days, produce a serum that is fairly satisfactory. The best results, however, are obtained with cultures from six to fifteen days old. During this period the cell growth reaches its height and the culture contains the greatest amount of toxin. Experiments on guinea-pigs also point to this conclusion. The inoculations are always made intraperitoneally.

According to Wassermann, no immunity can be produced in mice or rabbits to gonotoxin, although these animals may exhibit a slight resistance and adaptation. It has been my experience that rabbits and guinea-pigs show individual differences in their powers of resistance to repeated doses of gonotoxin, and that possibly in no case is there a true prolonged active immunity. The first inoculation always causes in rabbits a great loss of weight, sometimes amounting to one-fourth of the total weight. If the amount of toxin in the first inoculation is not too great and the animal is allowed to recover completely from its effect, the second and four or five subsequent inoculations give rise to only a slight loss of weight and discomfort. After a variable time, however, the majority of the animals reach a condition of hypersensitivity to the toxin and succumb finally to a dose that would never prove fatal to a normal animal. This seems to indicate, as Wassermann and others have pointed out, that the toxin present in the culture is, for the most part, if not entirely, derived from the dead bodies of the cells. When rabbits reach this hypersensitive stage, they refuse to eat and finally die in a greatly emaciated condition.

The rabbits are bled for the first time after they have received six inoculations, or about 60 c.c. of the culture, extending over a period of about a month. The most economical method is to bleed from the ear (which has been carefully shaved, washed with a germicide and finally with sterile normal salt solution) until the animals show signs of becoming hypersensitive, and then from the carotid. Large animals should yield a total of from 70 to 90 c.c. of serum. It is interesting and important to note that serum derived from one of the later bleedings is more potent than that obtained at first, when the animal has received only a few inoculations. Some rabbits, too, produce a better serum than others. It has also been found that the serum loses little, if any, of its power after remaining in the ice box for from one to two months. For distribution, small sealed glass tubes holding about 2 c.c. of serum are used. No preservative is added to the serum. With ordinary precautions it may easily be obtained sterile.

It is obviously a matter of interest to determine to what factors in the serum its curative properties are due. In inoculating rabbits, whole cultures, both the cells and the filtrate, were used with the hope that a serum might be produced possessing both antitoxic and bactericidal factors. Although the majority of those who have investigated the subject believe, with Wassermann, that the toxin of the gonococcus is not of such a character as to bring about the production of an antitoxin when injected into animals, still one observer, de Christmas, claims to have obtained from old cultures an extracellular toxin, which, when injected into the brain of a guinea-pig, kills in very small doses. He believes that this toxin is produced by a vital process of the cell and is analogous with the extracellular toxins of diphtheria and tetanus. This toxin, however, is produced in considerable amount only when a special culture medium is used, consisting of one part strongly albuminous peptone-free broth and three parts ascitic fluid. By inoculating rabbits and goats with the filtrate of old cultures he apparently obtained a serum with sufficient antitoxic power to neutralize twenty times its volume of toxin. Although I have not found that there is any very decided increase in the amount of toxin produced by the use of the formula of de Christmas, my experiments, so far as they have been conducted, tend to confirm his assertion that it is possible to obtain an antitoxin for the toxin of gonococcus. This seems probable, on the one hand, from the protective power of the serum for guinea-pigs. Two pigs were given 1 c.c. of serum and one pig 2 c.c. Eighteen hours later these three pige, and also an additional control pig, which had received no serum, were inoculated intraperitoneally with 3 c.c. of toxin. In one hour the temperature of the control pig had dropped over 10 degrees, and in three hours the animal was dead. The three pigs which had been treated with serum suffered only a slight drop in temperature and showed practically no signs of an intoxication. The details of these experiments will be given in a subsequent paper.

The clinical evidence also points to the same conclusion. In some cases there is a decrease of pain in the joints within twenty-four hours after the first administration of the serum. The most reasonable explanation of this result seems to be that some of the gonotoxin, which causes the inflammation and the attendant pain, has been neutralized.

Without doubt, however, the most important permanent relief which the serum affords in most cases is due to a bactericidal activity. In chronic gonorrhea there are comparatively few gonococci, often deep in the tissues, but, as an active immunity never arises in man to gonococcus, the system frequently finds difficulty in disposing of them. It seems possible that the serum supplies enough immune bodies to accomplish this, although too few to bring about the destruction of the great number of gonococci which are present in the urethra in acute gonorrhea. This theory has not been substantiated as yet by complete experimental evidence. The serum, however, has been found to contain both agglutinins and precipitins for the gonococcus.

Honorable Dealings.—It is a question whether the testimony given in suits for damages, against railroads and other corporations, is not at times biased by the knowledge that the physician will get no fee for his attendance, if the patient fails to "recover" for his injury. I was once asked to give a note saying that I was too busy to come to court to testify, because it was known that my opinion would be unfavorable to the cause of the plaintiff. Does anyone doubt that acceding to the request would have rendered the payment of my bill more certain?—J. B. Roberts.

THE TREATMENT OF GONORRHEAL RHEUMATISM BY AN ANTIGONOCOCCUS SERUM.*

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Cases of gonorrheal arthritis can be grouped roughly in three classes—those which are mild and recover quickly; those which are severe and run a prolonged course, and those few which continue indefinitely. From what is known of other infectious diseases, it is very evident that the prolonged cases of this infection must lack the antibodies which naturally exist or are produced in the vast majority of individuals. If these antibodies could be provided artificially recovery ought at least to be accelerated, and with the specific object of thus benefiting the patient whose history is given in Case 8, I proposed the scheme to Dr. John Torrey, the bacteriologist in the experimental laboratory of Cornell University Medical College. He follows this clinical report with one describing the details in the manufacture of an antigonococcus serum.

The gonococcus is somewhat peculiar in its pathogenic limitation to man. Inoculations of pure cultures of the micro-organism into the various organs and tissues of other animals produce little or no reaction, and even in man repeated subcutaneous injections of considerable amounts of such a culture have caused only slight or transient local inflammation. Furthermore, there is still doubt as to how the human urethra recovers from the infection. It is not because the gonococcus has its vitality lowered by residence in this organ, because in chronic cases the organism retains its virulence unimpaired and can excite as acute an inflammation as any new culture. Nor does a true general immunity arise, as infection, reinfection and superinfection in the same individual are common. Recovery, therefore, seems only explainable on the ground that the mucous membrane gradually becomes an unsuitable culture medium. The susceptibility of a mucous membrane also varies with its location and the age of the patient; the conjunctiva, for example, is very easily infected during infancy and much less so during adult life. The same is true of the vaginal mucosa, as epidemics in little girls are often observed, while women who have borne children are comparatively insusceptible. The reverse is true of the endometrium, which is much more easily infected after puberty than before. Contrary to the general opinion, the mucous membrane of the bladder and pelvis of the kidney is quite resistant, and the nasopharyngeal tract is almost never attacked. The penetration of the gonococci into the deeper layer of the epithelium, its proliferation and desquamation, the exudation of the serum and emigration of leucocytes, in which the gonococci are found from the early stages of the process, are familiar facts. It is not so well known, however, that there is probably no true phagocytosis in the sense that the leucocytes destroy the gonococci by ingestion. They may even help to disseminate the micro-organisms by carrying them into the general circulation, although this explanation of systemic invasion is not necessary, as they have been found in abundance, free in the submucous capillaries and lymphatics and inguinal lymph nodes. The injurious effect of the infection is probably produced not by a true toxin, but by a bacterial proteid which is liberated by the death of the micro-organism.

*Read before the N. Y. Academy of Medicine, 1905.

The local complications produced by direct extension of the disease into tracts which are in continuity with the original focus do not come within the scope of this article, except as they illustrate the possibilities of suppurative inflammation. For buboes and periurethral abscesses have been repeatedly found to yield only a pure culture of the gonococcus. Of course, mixed infections are common, but the probability, or even the possibility of a pure gonorrheal infection in any of the complications of this disease should have an important bearing on the treatment here offered.

The term gonorrheal rheumatism seems particularly appropriate, as by analogy it calls attention to a systemic infection which most commonly manifests itself by serious disease of one or more joints, and less often involves other organs. It invites comparison with the ordinary acute polyarticular rheumatism, in which the microbic cause of the almost exactly similar lesions is as yet not proved. After entering the general circulation the gonococcus shows a marked affinity for the serous membranes, and, in addition to the common disorders of joints and tendon sheaths which it produces, there are enough cases on record of endocarditis, pericarditis, pleurisy and meningitis, due only to the gonococcus, to make one attribute to this organism any such complication in a patient giving a more or less recent history of gonorrhea. Cases of iritis, myelitis, myositis, neuritis and skin eruptions, and also subcutaneous and bone inflammations and abscesses and true gonorrheal septicemia, i. e., cases in which the gonococcus is demonstrable in the blood, are reported and are mentioned as more than occasional possibilities. They all emphasize the gravity of the systemic infection which has occurred in every case of gonorrheal arthritis. One or more of the large joints, seldom those of the fingers or toes, may be attacked at almost any period after the incidence of the gonorrhea, the usual time being between the first and eighth week. It is generally considered necessary for the infection to have extended to the deep urethra before a systemic invasion can occur, but this belief is untenable, as there is on record a case of gonorrheal arthritis in an infant which followed a gonorrheal ophthalmia. It is evidently a complication which can occur from such an infection in any locality and in any stage.

The first symptoms of joint involvement are, of course, pain and disability. Swelling follows within a few hours, at first from serous effusion into the synovial membrane, and later from a diffuse edema of all periarticular structures. This edema is much more prominent than the intra-articular effusion. There is usually not much temperature or local redness, and it is more common for the affection to be monarticular than polyarticular. It is quite characteristic for the chart to show a fever of from 101 to 102 F. for the first two or three days of the joint infection, and this probably marks the period of systemic invasion. After this the temperature curve, unless suppuration occurs, stays close to the normal point. The disease runs a rather slow course for several months and tends to gradual recovery, but it is often more violent and accompanied by high fever and suppuration, which may destroy one or more joints and endanger life from exhaustion or from other metastases. Rarely there may follow a very chronic condition, as in two of the cases cited below, which terminates in a condition indistinguishable without the history, from an arthritis deformans, with destruction and ankylosis of nearly all the joints in the body. Experience seems to prove that practically every joint lesion which arises in the course of a gonorrhea, even when there are no signs

of the original disease except a few gonococci in the "shreds" obtained from the urethra, can be pretty safely attributed to this organism. Ordinary polyarticular rheumatism and other arthritic troubles can be considered only after the gonorrheal arthritis is excluded. Differentiation from tuberculosis is the most difficult, but the *x*-ray should show the usual osseous character of this process, which almost never occurs in gonorrhea, and if this fails no harm can come from a trial of the antigonococcus serum.

This question of diagnosis needs considerable emphasis, because I am convinced a great many cases, especially those in women, escape detection. In the early stages the resemblance to polyarticular rheumatism is very close, as at first one joint, then another, may be attacked, and the attack in one or more joints may be somewhat evanescent and subside rather quickly, but there is almost always a joint which will continue diseased, and this in the later stages will lead to confusion with tuberculosis. There is the same diffuse thickening around the joint, often with the apparent or real production of new bone. In addition, to complete the similarity, there is atrophy of the muscles above and below the joint and the general appearance and attitude characteristic of tuberculous disease. Or in the later stages, if several joints continue affected, it is very difficult to rule out an arthritis deformans. In all these cases the essential point in making the correct diagnosis is the history. If there has been a urethritis or a vaginitis a few days or weeks before the onset of joint symptoms a gonorrheal infection is almost certainly at the bottom of the trouble. The *x*-ray, as stated above, may be of great assistance, and to this can be added a trial of the antigonococcus serum, which, if the diagnosis is correct, will relieve the pain within a few days. Very little reliance, however, can be placed on finding the suspected organism in the fluid aspirated from such a joint.

The gonococcus lodges and grows in the synovial membrane alone and apparently only for a short time, as it can not be found in the exudate after the first week or ten days, and it has not been found in the periarthritic edema. It may, of course, escape from the joint (or tendon sheath) as the result of suppuration, and has thus been found in the neighboring abscesses, but by its presence there is usually excited only a serous or serofibrinous exudation with thickening of the synovial membrane.

The onset is acute and is followed by a rather slow course, with more or less damage to the joint from fibrillation of the cartilages, intra-articular adhesions and contraction of the ligaments, but ultimate recovery under careful treatment is the rule. Less commonly the exudate is purulent and the process is accompanied by the destruction inevitable in a suppurative inflammation in a joint, and bony ankylosis is about the best result to be expected. Even in these cases the reports seem to prove that the majority are due entirely to the gonococcus and that a mixed infection is unusual. When an additional infection does occur it has generally been with the *Staphylococcus albus* and less often with the streptococcus, and this possibility must not be forgotten in judging the results obtained by an antigonococcus serum. Fortunately for the diagnostician, however, nearly all the joint and serous membrane affections arising in the course of a gonorrhea can be pretty safely ascribed to this organism.

The ordinary antirheumatic treatment is notoriously unsatisfactory. Freely opening and washing out the joints with more or less strong antiseptics has given somewhat better results, but unless suppuration is present it only slightly accelerates recovery and imposes the additional risk of a mixed or pyogenic infection. If, however, there is any evidence of the existence of pus, free incision, irrigation and drainage with every antiseptic precaution is, of course, always indicated. In every suspicious case, however, from twenty to sixty minims of the antigonococcus serum should be administered every day, or every other day, beginning as early as possible after the arthritic complications appear and continuing until the pain and disability subside. I have usually given it in the loose tissue overlying the fascia in the back of the upper arm. There is generally a noticeable improvement at the end of twenty-four or thirty-six hours, and within a week or ten days there is an almost complete subsidence of the disorder if it is acute. After the suspension of the medication there seems to be a constant danger of recurrence or recrudescence of the arthritis, especially if the urethritis persists, and the inoculations may have to be repeated. The whole course of the disease, however, is vastly shortened and ameliorated, and, beyond an occasional erythema, which may be observed after the use of any serum, absolutely no ill effects have been produced.

As to the prognosis, the earlier the disease is recognised and the earlier the serum is administered the better, of course, is the result. After the inflammatory process has continued for weeks or months and new tissue and adhesions have formed, or if destructive lesions have developed, the restoration to a normal condition may be very slow or may never occur; but even in these cases the serum will produce a more or less rapid subsidence at least of the inflammatory symptoms and the pain. The stiffness and the faulty motility must be overcome, as in similar conditions, by electricity, massage, passive motion and hydrotherapy.

This method of treatment has the same limitations and disappointments as all serum therapy and is not advanced as an infallible remedy. It must be borne in mind that the effectiveness of the serum depends on the animal and the culture which is used, the length of time and the manner that this animal is inoculated and the number of "bleedings" to which it is subjected. The serum obtained from the first bleeding does not seem to be as good as that obtained in the second or third bleeding. Then, even with the same serum, some patients react far better than others. An old chronic case requires more doses than an acute one, and there is even a considerable variation in the acute cases. In all except one of my cases, and that a chronic one (Case 7), the patients have shown some reaction in the way of improvement, even if not of speedy cure.

It must be remembered, however, that the serum has little or no effect on the urethritis, and as long as any traces of this persist there is a theoretical and real danger of recrudescence of the arthritic complications. Case 3 shows this very well. The gonorrhea persisted and a few days after apparent cure of the "rheumatism" the latter reappeared, but almost immediately subsided under energetic local treatment of the urethritis and a repetition of the serum injections.

The recrudescence of the arthritis after its apparent cure by this serum therapy, the rarity of the affection compared to the almost universal susceptibility of the urethra, the proved systemic resistance of man to experimental inoculation and the clinical observation that the same individual is prone to repeated attacks of arthritis with every fresh gonorrhea all suggest some difference

in the local and systemic resistance to the infection. The unfortunates who suffer from gonorrheal rheumatism must have a constitutional or congenital deficiency of antibodies, and as soon as these are supplied artificially the disease subsides. Furthermore, the serum seems to have no very marked effect on an existing urethritis or vaginitis. There was apparently some improvement in the course of the inflammation in the mucosa in my cases, but not enough to warrant the abandonment of the present reasonably satisfactory methods of local treatment or even to suggest that the urethritis is sensibly affected.

Objection may be raised to the lack of scientific accuracy in this report, as before administering the serum the gonococcus was not always identified except in the female cases (in the pus obtained from the cervix). In men the clinical evidence of the disease was generally deemed sufficient. This must be taken as merely a preliminary statement to call attention to the value of the treatment in cases of systemic infection.

The histories of the cases here submitted are examples of the common acute, chronic and prolonged forms of this joint disease, and although they are by no means all that have been tested, I have not omitted the failures. In a "prolonged" case, or one which continues for years and goes from bad to worse, a failure should not be judged harshly when the possibility of error in diagnosis is considered. Many good observers doubt the existence of such a condition and its explanation involves some difficulties, but in following the histories of these patients the more or less steady continuation of the same mildly inflammatory process seems to me conclusive evidence of the nature of the original infection, even if its indefinite prolongation is due to some superimposed alteration in nutrition or metabolism. That one of these peculiar patients was evidently benefited was certainly gratifying and encouraging.

CASE 1.—A. McC., aged 35, had the first gonorrhea seven years ago. The second began about two weeks previously, or on April 8, 1905. On April 22 he first noticed pain in the left knee, which increased during the next two days so that he was unable to move the leg.

Examination.—I first saw him on April 24. He then had a profuse purulent urethral discharge with frequent micturition. The left knee was swollen, held in semiflexion and exquisitely tender to touch and motion. There was very little effusion into the joint, most of the swelling being periarticular, and very little cutaneous redness.

Treatment.—Antigonococcus serum *XXX* was given hypodermically in the subcutaneous tissue in the back of the left arm, and a urethral injection of a silver solution was prescribed.

Course of the Disease.—On April 26, or two days later, this patient was found moving about his room with no pain or limitation of motion in the leg and was thought to be cured, but on April 30 he called at my office, complaining of a recurrence of the pain in the leg. There was some tenderness and a little thickening above the patella and another hypodermic of thirty minims of the serum was administered. The urethritis showed some improvement at this time. On the following day the pain and stiffness in the knee had disappeared entirely and did not again recur. The urethritis, under the usual treatment, subsided at the end of about two weeks more.

CASE 2.—H. L., aged 34, was admitted to Gouverneur Hospital November 26, with a temperature of 101 F. and a history of gonorrhea which had first appeared three weeks ago. For the past four days the right knee had been painful and swollen.

Examination.—The joint was held in the semiflexed position; there were slight redness and signs of considerable serous effusion. The synovial membrane above the patella seemed thickened and in this locality was more tender than elsewhere, although the region all about the joint was painful and sensitive to pressure. The gonococcus was found in the urethral discharge (which had nearly disappeared).

Treatment.—On November 26, 27 and 28 forty minims of antigonococcus serum was injected into the subcutaneous tissue at the back of the upper arm—considerable local reaction followed, but no suppuration.

Result.—On November 27, or the day following the first injection, the fluid in the joints had diminished very perceptibly, and on November 29 no evidence of effusion could be detected. The improvement was marked and rapid, and on December 2 this patient went home without any sign of joint disorder.

CASE 3.—S. C., aged 22, showed the first symptoms of a gonorrheal urethritis on Nov. 10, 1905, and on November 13, or three days later, the left knee became swollen and painful and on the following day the left shoulder was involved. He was brought to Gouverneur Hospital on November 17 in the ambulance, as he was unable to move the left leg or to bear any weight on it.

Examination.—There was a profuse purulent urethral discharge; the left knee was held in a semiflexed position and was exquisitely sensitive to pressure, especially on the inner side in the line of the joint. There was evidence of some serous effusion, but no redness and no edema. The left shoulder was painful and tender to pressure and held in an immobile position, but there was no swelling or other external evidence of disease.

Treatment.—On November 17, 19, 21, 24, 26 and 27 the man received from thirty to forty minims at a dose of the antigonococcus serum hypodermically in the subcutaneous tissue, first in one arm and then in the other.

Course of Disease.—There was an almost immediate disappearance of the trouble in the shoulder, but that in the knee subsided more slowly and the maximum point of tenderness shifted from the suprapatellar region to the tendon sheaths around the inner tuberosity of the tibia. On November 28 this had all disappeared and the patient began to walk, and on the following day went home apparently cured. The urethritis, for purposes of observation, had received no treatment and had shown only the improvement which might have been expected from the rest in bed. On December 5, after considerable exertion, the pain and swelling in the knee recurred, and he returned to the hospital on December 8, barely able to walk. The left knee joint was partially flexed, tender and swollen, and was distended with (serous) fluid. An injection of a silver solution was prescribed to be used after each urination, and forty minims of the serum were administered this day and the next, with striking benefit. On December 12 he appeared at the hospital for examination without any effusion in the joint and with no pain or tenderness and with no urethritis. He was dismissed cured, with directions to continue the urethral injections twice daily for another week.

CASE 4.—J. F., aged 29, had a gonorrheal urethritis in March, 1905, and the purulent discharge continued till June, when the left wrist became swollen and painful and he entered St. Vincent's Hospital.

Clinical History.—The condition was not at first recognized and all the antirheumatic remedies were tried without effect. On August 19 there had been little or no improvement and the left wrist measured two and one-half inches more in circumference than the right. There was little or no redness and very little edema, the wrist was partially flexed and the fingers extended; the swelling appeared to consist of new tissue and extended from the knuckles to just above the wrist. There was a noticeable atrophy of the muscles of the forearm and motion was impossible and the tenderness great. The whole picture was so like tuberculous disease that even with the history and the few "shreds" and pus cells discoverable in the urine the diagnosis seemed very doubtful.

Treatment and Result.—Thirty minims of the antigonococcus serum were administered hypodermically on August 19, 25 and on September 1, 3, 5, 7 and 9, with very marked benefit, and on September 11 the patient was discharged practically cured. The swelling had decreased so that there was only a half inch difference in the circumference of the two wrists. On November 10 this patient was shown to the Interurban Clinical Society at its meeting in the Cornell University Medi-

cal College; the only abnormality was a slight limitation to full flexion and extension in this wrist.

CASE 5.—J. A., aged 34, entered the French Hospital Sept. 18, 1905, with a slight subsiding urethritis and a history of pain, swelling and disability in the right wrist existing for two days.

Clinical History.—There was a temperature of 102 F., with headache, malaise and some diarrhea, all of which disappeared shortly afterward, but the wrist remained practically unchanged. On October 23 examination revealed a diffuse painful swelling of this wrist, which was held semiflexed with the fingers extended. Of the signs of urethritis there only remained a few shreds in the urine in which I was told that gonococci had been previously found.

Treatment and Result.—Beginning with October 23 and continuing until November 8 thirty minims of the antigonococcus serum were injected on alternate days into the subcutaneous tissue, generally in the back of the upper arm. Before the first injection the patient had required morphin every night to relieve the pain, but after the first injection this was no longer needed. The swelling and disability subsided very much more slowly, and on November 10, when this patient was shown to the Interurban Clinical Society at Cornell University Medical College, the result was not brilliant. The tenderness, pain and most of the enlargement had gone, but some of the new tissue and the many adhesions resulting from the inflammation remained, and the hand was still incapable of use. I did not, however, consider it a failure, as the signs of active disease had been dissipated. The results of the disease could only be cured by time and mechanical treatment.

CASE 6.—A. B., female, aged 17, gave a suspicious history of a syphilitic infection some two years previously.

Clinical History.—On April 20, 1905, she was admitted to the medical wards of the St. Francis Hospital with a history of vaginitis, urethritis and endometritis existing for a couple of weeks. During the past three days the left wrist and left knee had become swollen and painful. She was confined to bed and received all the usual antirheumatic remedies, without the least improvement until the gonorrheal character of the disorder was finally demonstrated in the pus obtained from the cervix. On June 1 she was transferred to the surgical division. The left wrist and the knee had the general appearance of the old-fashioned "tumor albus." There was very little redness over either joint and each was in a semiflexed position and extremely tender. The slightest motion caused great pain. In the wrist there was an even swelling and firm thickening which extended from the knuckles nearly to the middle of the forearm. In the knee there was the same diffuse periarticular edema and also thickening of the suprapatella bursa. The joint contained some fluid. There was perceptible atrophy of the muscles in the forearm and the leg. Without the history and the finding of the gonococcus in the cervical pus each of the joints might have been pronounced to be the subject of tuberculous disease.

Treatment.—On June 2 the first injection of thirty minims of the antigonococcus serum was given into the subcutaneous tissue on the back of the left upper arm. The next day an erysipelas-like blush developed in the neighborhood of the injection and extended from the shoulder nearly to the wrist. This began to subside within a couple of days, but caused me to postpone the next injection until June 6, when thirty minims were given in the other arm. On the following day the pain in the wrist was much less and the knee showed some improvement. The injections were repeated on June 8, 12 and 15.

Result.—The wrist had lost all pain after the third injection, but, as might have been expected, it was somewhat stiff and did not regain full mobility for about two weeks. The inflammatory symptoms disappeared from the knee on June 16, when the patient was able to get out of bed for the first time since admission on April 20. From this time on there was steady, though somewhat slow, improvement; walking was begun on June 20 and she went home the following week. The wrist had entirely recovered, but the knee still had some limitation of motion.

CASE 7.—C. W., aged 34, suffered from several attacks of gonorrheal urethritis between 1893 and 1899.

Clinical History.—In the latter year the metacarpo-phalangeal joint of the left index finger became swollen and painful and has continued in a more or less disordered condition ever since. The urethritis persisted as a "morning drop" and shreds in the urine were noticed for several years. In 1901 the right knee began to show pain and swelling and the disease gradually extended from one joint to another until in October, 1905, he entered Gouverneur Hospital. He was just able to move about a few steps at a time with the aid of crutches. Every large joint was tender and showed thickening of all the periarticular soft parts, but no redness; most of them revealed marked limitation of motion and the mobility which remained was painful; the muscles of the arms and legs were atrophied and the feet edematous; there was a subluxation of the right knee.

Treatment and Result.—For six weeks this man received samples of the antigonococcus serum from nearly every rabbit in the laboratory and it was impossible to detect any improvement. His case is described as a frank failure in the treatment and as an example of what I am firmly convinced is a chronic gonorrheal arthritis of the worst type like Case 8. This form of the disease is often doubted, but though rare, the history is so plain in the coincidence and coexistence of the urethritis and the arthritis that I can make no other diagnosis. In neither of these two chronic cases, however, could the gonococcus be demonstrated since they have come under observation.

CASE 8.—H. W., aged 39, had a first attack of gonorrhea in December 1887.

Clinical History.—This attack had almost disappeared, when in the first week of January he spent a whole day skating. The next morning the left knee was found to be swollen and painful and a few days later the right knee became involved. The probable origin of the difficulty was not suspected, and the urethritis shortly afterward disappeared, although he noted shreds in the urine for years. He never entirely recovered from the original arthritis, and though from time to time it improved, sooner or later another joint became inflamed. Every conceivable cure was attempted in this country and Europe, but after a year or two symptoms of arthritis deformans or a chronic rheumatism with intercurrent acute exacerbations in one or another joint were so prominent that no one seemed to have even suspected a gonorrheal infection. In 1901 he suffered from a rather severe typhoid fever. Before that period he had been able to get about in the intervals of acute attacks, though with increasing difficulty, with a cane or on crutches. After the fever, however, the former "rheumatism" returned worse than ever and he became bedridden. Then an iritis developed, first in one eye and then the other, and in course of time resulted in nearly complete loss of sight. It is interesting to note that about this period he underwent a rather prolonged course of treatment with the *x*-rays applied over the inflamed joints. The result was no improvement of the arthritis and an extensive severe dermatitis. He first came under my observation in November, 1904, and his pitiful condition and history prompted the work which resulted in this serum. The patient was bed-ridden, blind, with ankylosis of all the spinal joints, hips flexed, knees bent at a right angle and dislocated backward and with elbows, wrists, fingers and ankles swollen and inflamed. The only joints not affected were the temporo-maxillary and those of the toes. He had to be fed by a nurse and suffered constant pain.

Treatment and Results.—The injections of serum, from twenty to thirty minims at a dose, were begun in January, 1905, and given about twice a week until February. The inflammatory symptoms and the pain began at once to subside, but after the medication was stopped the disease reappeared again in the wrists, and the hypodermics were resumed and continued twice a week during March. After about the 1st of April there were no further signs of active inflammation and he became able to feed himself and to smoke a pipe. Then massage was begun and at present (October, 1905.) he is able for the first time in several years to sit in a chair. The bony ankylosis of the spine, the partial ankylosis of the hips and the subluxation and deformity of the knee joints and the blindness, of course, remain, but the freedom from active inflammation and the pain is a remarkable gain. There was only one hypodermic abscess as the result of some twenty or thirty injections.

THE "PATENT MEDICINE" AND NOSTRUM EVILS.

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Encouraged by a small measure of success resulting from the efforts put forth in the recent past to stamp out the "patent medicine" and secret nostrum evils, it behooves the medical profession at large to forward the beneficent effects of an awakening that has come none too early, until victory for reputable therapeutics and pharmacy is no longer in doubt. Individual members of our profession and medical organizations can aid the progress of this praiseworthy work by a calm, temperate, dispassionate discussion of the question, more particularly by pointing out the reasons for the phenomenal success of these doubtful preparations and by urging measures of relief in the interests of the public and professional weal. It is the province of the trained and disinterested physician to give appropriate and efficient direction to the movement.

THE NATURE OF THE BUSINESS.

It is well known that adulterants are extensively introduced into foodstuffs and medicines. This vicious practice is not of recent birth, but has long been carried on by the orientals. Such adulterations and falsifications have been gradually brought under the control of state and municipal authorities, but an even greater American curse has been allowed to grow and develop, without official molestation by a patient and long-suffering people—the "patent medicine" and nostrum enterprises.

It is well to recollect at the outset that a patented medicine is not a secret medicine, since the inventor or manufacturer must disclose the composition and also the process of manufacture; this information is obtainable on application to the patent office of the government. It is, however, protected for a given time, 17 years, after which period it becomes public property. On the other hand, the trade-mark nostrum, under which head come innumerable secret or semi-secret proprietary preparations, is a perpetual monopoly, and to this class belong so-called "patent medicines," which, however, have not been patented. Since the nostrums would have narrow chances of success without the patronage of physicians, and since also so-called "patent medicines" are supported principally by the general public, it seems to me that a divisional study of the subject based on this significant distinction is necessary.

The lay press, more especially such representative publications as *Collier's Weekly, Ladies' Home Journal,* and others, have already broken soil in the field of "patent medicines," and their efforts promise the richest harvest; they are fully entitled to the warmest gratitude of the medical profession, as well as of all who are truly desirous of promoting the social good.

To attempt to point out to a medical audience the capabilities for harmful effects of the many known "patent medicines" which are used by a confiding public would be a work of supererogation. Physicians also know that exorbitant charges are made for these preparations—a fact not yet realized by the general public. Indeed, the extent of the prostitution of talent and services to the injury of their fellow-men, by the venal manufacturers of these preparations, strikes one with painful astonishment. Numerous individual instances could be cited to corroborate this statement, but it is enough here to refer specifically to peruna, which has been exploited by its quack owner as a certain cure for catarrh—a term so defined as to embrace nearly all human ills. The composition of this much-advertised preparation, according to analyses carried out by *Collier's Weekly,* is as follows: One-half pint Cologne spirits, 190 proof, and 1½ pints of water, adding thereto a little cubebs for flavor and a little burned sugar for color. But peruna has many conspicuous rivals, and it is an interesting fact that, taking the different "patent medicines" at random, it will be found that alcohol in some form is, as a rule, the principal constituent.

Mr. Edward Bok has done telling pioneer work in creating public sentiment against the patent-medicine curse, and has catalogued a long list of preparations by name, giving the percentages of alcohol which each contains.

A glance at this list will convince the most skeptical that the percentage of alcohol contained in the various "bitters" and "bracers" is, on the average, higher than in spirituous and malt liquors, or the products of the saloon. It is a matter of observation that in places (e. g., prohibition states) in which whisky can not be purchased the consumption of patent medicines reaches its maximum. It would appear, therefore, that they have been conceived, manufactured and used quite outside of the sphere of legitimate medicine.

The principal objection to these nostrums, however, appertains to the well-known methods which have been and are adopted to exploit them. With an assumed devotion to mankind, which is only equalled by the love of the Tudor monarchs for flowers and gardens, and an implied burning desire to relieve suffering humanity from its manifold ills, attractive representations are made to the public, through advertisements, which, however, can be readily shown to be largely fictitious.

Unfortunately, the people of the work-a-day world, who are afflicted with chronic ailments of various kinds and degrees, whatever their mental training, are unconsciously credulous in the matter of the extravagant claims made in the newspapers and magazines by the vendors of "patent medicines." Moreover, the modern type of quack is quite able to appeal with success to the most cultured classes of society, so well has he or his hired advertisement writer mastered the art of seduction.

Females complaining of backache, and young men and boys, who believe what they read in newspapers and magazines about the meaning of their meaningless symptoms, become ready victims of a vicious class of swindlers. It appears to me, however, that many doubtful or so-called borderland nostrums, which are advertised in both the medical and lay press as being of great value in incurable conditions and readily prescribed by practicing physicians, are not less objectionable than the "patent medicines." At all events, they are scarcely accessible to the spirit of science. Obviously the present propaganda against the evil under consideration must be extended beyond the "patent medicines" to many well-known "proprietary" articles.[1]

Again, the testimonials of widely-known persons, many of whom have attained to eminence in their respective callings, have stimulated and encouraged the use of nostrums. Here is a shining example: Mrs. Leslie Carter says of peruna: "It cures all catarrhal affections like magic. No money could tempt me to be

1. Journal A. M. A., Sept. 23, 1905.

without this remedy for even a day." The columns of our newspapers and other lay periodicals as advertising media have been the principal or essential element in bringing about the pecuniary success of "patent medicines." While we need not stop to inquire what has been the motive or moral principle governing the universal action of the lay press in respect to its advertising pages in the past, it has manifested an obvious ambition for a quick financial return, to say the least. There is cause for exultation, however, in the fact that a wave of righteous public indignation has appeared on the horizon and bids fair to sweep over and extirpate the free field so long pre-empted by the quacks of this country.

Mr. Samuel Hopkins Adams has made the profession and public alike his debtor by giving a "full explanation and exposure of patent-medicine methods and the harm done to the innocent public by this industry." He has pointed out a number of great practical truths which can scarcely be over-emphasized. In the first place, as is well known to physicians, the long-continued use of certain drugs (e. g., cocain, opium, arterial stimulants) will most certainly enslave the devotees to their use, and thus are the ranks of the drug fiend constantly recruited. Mr. Adams clearly echoes medical opinion in pointing out that the alcohol-laden "bitters," "sarsaparillas," and "tonics," taken daily and in increasing doses, make not for health, but for disease. Such information as this writer has been giving directly to the public will prove effective in lessening the annual outlay of moneys by Americans for medicines having little or no value for the conditions in which they are employed.

Having considered "patent medicines," I shall attempt to point out the reasons for a parallel demand for proprietary remedies and nostrums. At the outset, the fact is to be emphasized that it would be unjust to condemn all proprietary preparations; they are not objectionable provided that their composition be revealed and they are judiciously and honestly exploited. On the other hand, proprietary remedies that are secret or semi-secret in character, and the immense majority of the "proprietaries" belong to this category, are clearly condemnable. Every intelligent and properly-minded physician must concede that it is wholly unscientific to prescribe remedies of whose composition he is ignorant, or a mixture for whose reliability he can not vouch, and no one can deny that the medical profession has been a powerful and unfailing adjunct of the manufacturers of this class of remedies; they have been allowing the manufacturers of secret proprietary articles to compound their preparations and even to point out the indications for their use. Again, as Dr. Frank Billings[2] says, "many so-called medical journals are subsidized by medical manufacturers, and one-half of the medical journals of the country would be out of existence if it were not for the nostrum advertisements."

One of the most unfortunate aspects of the situation is the widespread control exercised by the Proprietary Association of America over both the medical and lay press. Moreover, the advertisements of the "proprietaries," be it observed, exhibit in a striking degree the same structure and method as those of "patent medicines," and they, together with the visiting agents, are chiefly responsible for the extensive employment of nostrums by overcredulous practicing physicians. In this connection, the claims of certain writers that the flagrant iniquities of many pharmaceutical manufacturers are the natural result of modern therapeutic nihilism must be largely admitted. As elsewhere stated, "Our colleges of medicine and pharmacy are scarcely alive to the moral responsibility involved in this gravely threatening evil. The teachings of these schools should be of such a character as to enable students to discriminate between genuine and spurious remedial agents."[3]

The principal neglect on the part of the medical schools affects the science and art of pharmacy, and on this question the editor of *American Medicine*, in a recent issue, pertinently remarks: "The revolt against these nauseating mixtures of the past generation of physicians was, in part at least, a cause for that remarkable stampede toward homeopathy which this country witnessed. All the work of discovering proper methods of administering drugs has thus been left to the pharmacist. The tendency toward therapeutic nihilism would certainly have become a great evil but for the pharmacist, to whom the medical profession certainly owes a great debt of gratitude."

Unquestionably, the time is ripe for the inauguration of a campaign of education among physicians and college faculties in the interests of legitimate, scientific therapeutics and pharmacy.

HOW TO COMBAT THE BUSINESS.

I shall next deal with various measures and methods for the cure of the nostrum evils. In the first place, a most timely organized effort has been instituted by the American Medical Association, with the object of exposing the evils of the preparations under discussion, of determining their precise composition, and showing the extent of the harmful effects which they produce. To THE JOURNAL of the American Medical Association belongs the credit of suggesting the formation of a board of control, with the double object of reviewing all medical preparations offered for insertion in the advertising pages of that journal, and of giving a description of the unofficial preparations, which conform to the required standard, the whole to be issued in a work supplementary to the United States Pharmacopeia, to be entitled, "New and Unofficial Remedies."

Furthermore, the board of trustees of the American Medical Association has authorized the creation of a Council on Pharmacy and Chemistry, which proposes to examine into the composition of the numerous and varied preparations that are constantly offered to the medical profession independently of the United States Pharmacopeia. Up to the present time the investigations have been confined principally to proprietary nostrums, on which the editor of THE JOURNAL of the American Medical Association has wisely commented as follows: "Before we can proclaim war on patent medicines with energy and a clear conscience, it will be necessary for us as physicians to rid ourselves of the proprietary nostrum evil by ceasing to prescribe preparations that are nothing more nor less than patent medicines. Before medical journals can criticize newspapers for carrying patent medicine advertisements, they must themselves refuse advertisements of similar preparations, even though these be dignified with the name of proprietary medicines."

It should be stated here that the secretary of agriculture has organized in the Bureau of Chemistry of that department a drug laboratory for the investigation of the purity, adulteration, false labeling and false brand-

2. "The Nostrum Evil," THE JOURNAL A. M. A., Dec. 2, 1905.

3. Anders: "The Curriculum of the Scientific Professional College," the Medical Bulletin, October, 1905.

ing of drugs. This laboratory, which was established about two and a half years ago, has accomplished much valuable work, and the bulletins issued from it can be secured by addressing a request to that effect to the secretary of agriculture. More recently, the agricultural department, at the request of the postmaster-general, has investigated certain secret remedies and nostrums, as well as the advertisements offered for transmission through the mails. As a consequence, the literature pertaining to the nostrums investigated has been excluded from the mails, and to this extent the public has been protected against fraudulent allegations.

In commenting on the important work undertaken by the postoffice and agricultural departments at Washington, Dr. W. H. Wiley[4] remarks: "In the interests of the medical profession, of the pharmaceutical profession and of the public, it is hoped that federal control of drugs in general may become universal and more efficient. In this way the interests of the two great professions mentioned, and of the public, can be best conserved." As measures of relief for the evils under consideration, the combined results of the labors of the lay press, the medical press, the Council on Pharmacy and Chemistry of the American Medical Association, and the two departments of the United States government mentioned above, can not be overestimated, and through these channels both the general public and the medical profession are receiving reliable, impartial information on the subject.

In attempting to deal with this great problem, however, its financial aspects must be reckoned with, since men engaged in this nefarious business pay annually enormous sums of money to newspapers, magazines and medical periodicals for cunningly executed advertisements of a deceptive character. It has been estimated that the yearly amount expended for "patent medicines" and other nostrums exceeds $100,000,000—"more than one thousand dollars to each daily, weekly and monthly periodical in the country." The query, Can the mutually profitable financial relations existing between the press and the patent-medicine makers be severed? is pertinent. A few high-class secular periodicals, e. g. *The Outlook, The Evening Post, Life, Collier's Weekly,* and *The Ladies' Home Journal,* refuse to accept such advertisements, thus showing an ardent desire to break up this illicit combination. We may be assured that a thorough appreciation of the beneficial results to the public resulting from this attitude of the lay press will prove to be an incentive for emulation, and that eventually, as the result of the upheaval in progress, all reputable publications—both medical and lay—will be lifted to the same high, ethical level.

On the other hand, to my mind, the great American evil could be more effectually remedied by a comprehensive legal enactment compelling all makers of proprietary articles to place the formula on the bottle. Legislation could be of further service by insisting that preparations containing poisons must be labelled accordingly, while those containing alcohol must give its precise percentage. Under these circumstances, laudatory advertisements would no longer suffice, for the simplicity of their composition and the absurdity of the extravagant and unfounded claims made for them as therapeutic agents would be known to the general public. Such legislative action has been taken both in the state of North Dakota and by the New Zealand parliament. According to Dr. Syme,[5] there followed in the last-named country a storm of protest by the manufacturers of "patent medicines" and their agents, which led to a modification of the regulations to the extent that the formula was to be lodged with the Health Department. But the manufacturers still objected and they decided not to send their medicines to New Zealand, realizing, as this writer observes, that "they would have no demand at the extravagant prices at which they had hitherto been sold."

The patent medicine manufacturer is quite aware of the fact that so soon as the public shall have been made acquainted with the composition of his fraudulent preparations popular support will be promptly withdrawn. It is, however, impossible to foresee the time when state legislative action shall have progressed to the point of accomplishing the coveted practical good, owing to the existence of organized opposing forces, such as the Proprietary Association of America, and other influences. Meanwhile it seems to me that the work of educating the people at large devolves naturally on physicians and pharmacists (although up to the present undertaken principally by the lay press), even at the risk of being denounced as actuated by self-interest.

It is of the utmost importance to make the public understand, as the result of the present crusade, that the "demonstrations of popular sentiment" in favor of these nostrums are absolutely fictitious, that they are inspired by the unwarranted claims of the manufacturers, and that advertising contracts exercise a controlling influence over the lay press, especially in the rural districts. The popularizing of such information would at least compel manufacturers to guard and moderate the unfounded claims of their patented and proprietary articles. May we not indulge ourselves in the hope that a properly directed, energetic and unceasing agitation of the subject, in the absence of efficient protective legislation, may compel the adoption of the habit of placing the formulas on the bottle?

As touching the secret proprietary articles, which are advertised principally in the medical journals, it is assuredly the province of our profession to create an appropriate professional sentiment, and to disseminate thoughts and data, that will bring medical men in touch with those influences that make for a higher moral and ethical standard. No other factor would be so influential as an uplifting force in this prodigious task as the united medical press. THE JOURNAL of the American Medical Association has had the courage and independence to give to the medical profession of this country the true situation regarding the nostrum evil in a truly scientific spirit, and is rapidly eliminating the advertisements of articles of an objectionable character from its advertising columns. As stated above, a certain number of high-class lay journals are refusing to accept the advertisements of unethical "patent medicines," and the question naturally arises, Can the best medical journals afford to occupy any longer a lower ground with reference to the secret proprietary articles? A movement of this sort should include the education and enlightenment of the general public—a course that would, in turn, give greater scope and meaning to all professional sentiments and lines of action. So long as the community is opposed, or even indifferent, to the endeavors of the profession to correct the abuses under discussion, just so long will the deep-rooted inclination of the populace to

4. THE JOURNAL A. M. A., Dec. 3, 1904.

5. International Medical Journal of Australasia, quoted by THE JOURNAL A. M. A., Nov. 4, 1905, p. 1422.

disregard or even combat new ideas and methods defeat our best efforts.

Finally, the profession must adopt a general plan of action if it would hope to execute a winning fight against the great wrong, and I would respectfully submit a series of lines of attack to be included in such a plan:

1. Agitation through co-operative effort on the part of high-class journals, medical writers and medical organizations with a view to enlightening the profession and elevating the standard of the profession.

2. The enlightenment of the public by the agencies noted under 1 with the aid of the influential lay press, which has already rendered excellent pioneer service.

3. Medical schools and medical journals should aim to educate physicians regarding official preparations and proprietary articles whose composition is known and of proved usefulness.

4. The proper training of medical students in the science and art of pharmacy, including prescription writing.

5. Co-operative effort on the part of physicians and scientific pharmacists is to be encouraged, e. g., such as the admirable work that is being carried out by the Council on Pharmacy and Chemistry of the American Medical Association.

6. Continued exposure of "patent medicine" and nostrum methods and the disclosure of the composition of these preparations by the lay and medical press (to the public) is urgently needed.

7. The creation of a professional sentiment to the effect that trade-marked nostrums are unworthy of being prescribed.

8. Attempts to emancipate a shackled medical and lay press must be persistently maintained.

9. The enactment of appropriate legislation—a line of action in which it will be hard to demonstrate practical results in the immediate future, owing to powerful organized opposition.

10. The furtherance of the aims of the upheaval in progress by completing the organization of the medical profession of America in accordance with the plan proposed by the American Medical Association in 1900.

SODIUM AURATE: A NON-IRRITATING LOCAL ANTISEPTIC OF REMARKABLE POWER.*

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The need of an antiseptic combining effective germicidal power with lack of toxicity to the tissues is well known. So many chemical antiseptics have been tried without success that the belief has become prevalent that no chemical substance could possibly fill these requirements. In fact, attention has been directed of late almost exclusively to the development of serum therapy, which, however, has yielded but few practical results. The problem has presented itself to me particularly in connection with gonorrheal opthalmia. Here it would seem easy to overcome the infection by means of local applications, yet thus far no satisfactory antiseptic has been available for this purpose. After many failures in attempts to solve this problem, I believe I have found an antiseptic which will prove of great value not only in the treatment of infections of the eye, but also in the treatment of many other conditions in which the use of a local antiseptic is indicated. In this communication the method of preparing the antiseptic will be given and the experiments which demonstrate its bactericidal properties will be described. While in the cases in which it has been tried it has given most gratifying results, as yet these are necessarily few in number, and a full report of its action in a series of clinical cases must be deferred.

* Read before the New England Ophthalmological Society, and before the Boston Society of the Medical Sciences.

PREPARATION.

The antiseptic is prepared as follows:

One gram (15 grs.) of gold chlorid[1] is dissolved in 50 c.c. distilled water. To this is cautiously added sufficient of a 5 per cent. aqueous solution of sodium hydrate to produce a faintly alkaline reaction with ordinary litmus paper. As the process of neutralization approaches the stage desired the fluid becomes lighter in color and also slightly turbid. One hundred c.c. of a 1 per cent. solution of boric acid is then quickly added and the whole thoroughly shaken. This should cause the turbidity to disappear and the fluid to turn somewhat darker in color. If the turbidity persists, it indicates that too much sodium hydrate has been added. The total volume should now be made up to 200 c.c. with normal saline solution, filtered and kept in a glass stoppered bottle. The final solution should give a faintly acid reaction. While, as will be shown, the gold does not exist in the fluid as a chlorid, for practical convenience the strength of the fluid is best expressed in the percentage of gold chlorid used in its preparation. The above solution will, therefore, be designated as a ½ per cent. solution. A 2 per cent. solution may be prepared from which the lower percentages may be obtained by dilution, but it is much more difficult to arrive at the proper degree of acidity in the higher strength. By evaporating the fluid to dryness the antiseptic may be obtained in powder form from which an ointment can be prepared.

The bactericidal properties of this fluid are dependent on the presence of gold. It is the partial or complete neutralization of the fluid, however, that renders possible its use as a practical antiseptic. The boric acid is not an essential constituent and is added only to avoid a practical difficulty. This arises from the fact that in order to prevent precipitation the fluid must be sufficiently acid, while if too acid it is highly irritating to the eye. The boric acid neutralizes any slight excess of sodium hydrate and ensures an acid fluid free from irritating qualities. If, through mistake, too much sodium hydrate has been added and precipitation has taken place (which may not occur until after twenty-four hours) the precipitate can be dissolved by adding an excess of hydrochloric acid and the acidity again reduced to the proper degree by sodium hydrate. When properly prepared the solution remains stable indefinitely.

The chemical reactions which take place in the preparation of this fluid are assumed to be as follows:

$$HAuCl_4 + NaOH = NaAuCl_4 + H_2O.$$
$$NaAuCl_4 + 3\,NaOH = Au(OH)_3 + 4\,NaCl.$$
$$Au(OH)_3 + NaOH = O\text{-}Au\text{-}O\text{-}Na + 2\,H_2O.$$

Further reaction is prevented by the boric acid, which reacts with the excess of sodium hydrate, thus—

$$B(OH)_3 + 3\,NaOH = B(ONa)_3 + 3\,H_2O.$$

The final constituents of the fluid, then, are in all probability sodium aurate, sodium chlorid, sodium borate and boric acid. Of these it is obvious that the sodium aurate alone gives the bactericidal properties to the fluid. It is hardly necessary to state that the antiseptic could be prepared by the use of other compounds of gold and of other alkalies, but the method here given seems to be the most convenient.

1. Chlorid of gold may be obtained from wholesale druggists or from dealers in photographic supplies. Although sold under this name it is really hydrochlorauric acid, $HAuCl_4$. The pharmacopeial preparation, chlorid of gold and sodium may be substituted if used in double quantity. It is, however, more expensive.

When prepared as above this fluid, in strength of 0.5 per cent. gold chlorid, may be repeatedly dropped into the conjunctival sac without producing any feeling of irritation or giving rise to hyperemia. After a time a peculiar sticky or dry sensation may be experienced, and one or two patients have spoken of an occasional blurring of vision after its use. This is not due to mucus or other secretion, but probably to small collections of desquamated epithelium brushed across the cornea by the lids. The 1 per cent. solution produces some slight irritation, but judging by the bacteriologic tests, for most purposes this is unnecessarily strong. If the 1 per cent., or even the 2 per cent., solution is made faintly alkaline in reaction it loses its irritating qualities, but unfortunately will undergo precipitation within a few days. Where it is necessary, however, to make use of the stronger solution it can be prepared fresh every day from two stock solutions, one containing the gold and the other the alkali in suitable proportions. The alkaline solution has fully as strong bactericidal properties as the acid solution. The only disagreeable feature of the fluid, whether acid or alkaline, is that it stains about everything on which it is allowed to dry, including the skin. It does not irritate the latter, however, and the stain wears off in a few days. If not too old the stain may be removed from linen by means of Lugol's solution. Fortunately the fluid does not stain the conjunctiva or cornea. While, as already stated, the fluid is stable when properly prepared, it undergoes a certain amount of precipitation when foreign particles are added to it by the repeated insertion of eye-droppers. It is, therefore, probably best to renew frequently the fluid used by the patients.

BACTERIOLOGIC TESTS.

The bactericidal power of the antiseptic was tested by placing one-half to one c.c. in a small sterile glass vessel, stirring into it organisms from a 24-hour-old culture, and taking cultures from the mixture at definite intervals. An amount of bacterial growth equal to several colonies was always stirred in so that the fluid was rendered distinctly turbid. In making the cultures one large loop full of the fluid was transferred to the water of condensation in a blood serum culture tube, the latter shaken and the water flowed over the solid medium. The culture tubes were especially prepared with an extra amount of water for this purpose. By this method the number of bacteria killed in a given time was quite accurately indicated by the number of colonies which grew out on the solid media. Thus, in case all the cultures taken were positive, the length of exposure necessary to kill all the organisms could be closely estimated, and the next series of exposures timed accordingly. A sufficient variety of bacteria were tested to show that the action of the fluid was not limited to any special kind. The following table shows the results of the tests:[2]

Explanation: The first of the two figures stating time of exposure indicates the last positive culture, the second figure the first negative culture. The time is expressed in minutes, except in the case of the last two organisms.

Strength of solution computed in percentage gold chlorid	1/2 p. c.	1/3 p. c.	1/4 p. c.	1/8 p. c.	1/16 p. c.	1/32 p. c.
Staphylococcus aureus.	¼, 1	½, 1	2, 3	5, 8	8, 10	10, 15
B. coli communis.....	¼, 1	..	1, 2	..	..	..
B. typhosus	¼, 1	..	..	2, 4	..	..
B. prodigiosus.....	¼, 1	..	..	1, 2	..	..
Pneumococcus	¼, 1	..	¼, 1	2, 4	4, 6	..
Streptococcus	¼, 1	¼, 1	¼, 1	¼, 1	..	4, 5
B. diphtheriæ	¼, 1	¼, 1	¼, 1	¼, 1	2, 4	4, 8
B. pneumoniæ.....	¼, 1	..	¼, 1	..	¼, 1	..
B. anthracis (spores).	2, 3	..	3½, 4½	..	..	..
B. subtilis (spores)...	2, 3	..	6, 19	..	..	..

2. These tests have been carefully repeated and the results confirmed by Dr. E. N. Toby in the bacteriological laboratory of the Harvard Medical School.

Bactericidal Action in Presence of Albumin.—A saturated filtered solution of dried egg albumin was mixed with the ½ per cent. solution in the proportion of 1:2, making the final percentage 1/3 per cent. and the mixture tested as described above. The staphylococcus aureus was selected for these tests on account of its resistant powers. The results obtained were practically the same as when the dilution was made with normal saline solution. When the tests were made immediately after mixing a slightly longer exposure was required, due no doubt to the fact that the solution did not have the same concentration throughout. The same thing was true when the organisms were stirred in the albuminous fluid first and the antiseptic then added. When the mixture was allowed to stand one hour before testing the results were exactly the same as in the absence of albumin. After standing twenty-four hours an exposure of two to three minutes was required. At the end of twenty-four hours the mixture began to assume a purple tint, indicating a reaction between the albumin and gold, and after several days a precipitate was thrown down. It is evident from these tests, therefore, that for all practical purposes the bactericidal action of the antiseptic is not interfered with by the presence of albumin.

Bactericidal Action in Presence of Urine.—On mixing with urine no apparent reaction took place and the bactericidal power of the antiseptic was not impaired even when the mixture was allowed to stand forty-five minutes before testing.

Bactericidal Action in Presence of Blood.—When the ½ per cent. solution was mixed with an equal quantity of blood the latter immediately became more intensely red and the bactericidal properties of the antiseptic were at once destroyed. The typhoid bacillus was not killed by the mixture after an exposure of twenty-four hours. Microscopic examination failed to show any change in the character of the blood on the addition of the antiseptic, but its power to coagulate was destroyed.

The prompt change in color of the blood and the simultaneous loss of bactericidal power point to a union of the gold with the hemoglobin of the blood. A reaction with the blood plasma seems improbable, owing to the extreme slowness with which the antiseptic reacts with albumin. In any case these tests demonstrate the futility of attempting to use the antiseptic intravenously.

Bactericidal Action on Infected Pus.—Pus obtained from cases of otitis media infected with the staphylococcus aureus and albus gave negative cultures after exposure of three to four minutes to the ½ per cent. solution.

Action of the Antiseptic on Ferments.—It was found that the pancreatic digestion of albumin was not interfered with in the ⅛ per cent. solution, but was prevented in the ¼ per cent. solution. At the end of twenty-four hours the latter was diluted to make a ⅛ per cent. solution, but digestion still failed to go on, indicating destruction of the enzyme. The fermentation of glucose by yeast occurred in the 1/64 per cent. solution, but not in the 1/32 per cent. solution. Yeast exposed to the action of the 1/16 per cent. solution for one hour failed to ferment glucose when the mixture was diluted to the strength of 1/64 per cent.

TOXICITY OF THE ANTISEPTIC.

The harmlessness of the ½ per cent. solution when dropped into the conjunctival sac has already been mentioned. It has been used in this way at intervals of two minutes for one-half hour and at intervals of fifteen minutes for two weeks without injury to the eye. The subcutaneous injection of the fluid into a rabbit and also

into my arm was followed by no reaction. The following experiments were made to determine its remote effects when absorbed and taken into the circulation: Three c.c. of the ½ per cent. solution were injected into the ear vein of a rabbit without producing any apparent effect. Fifteen c.c. of the same solution were injected into the peritoneal cavity of a rabbit weighing four pounds, also without apparent effect. This would be equivalent to a dose of about 500 c.c. in the case of an adult man. On the other hand, thirty c.c. of the ½ per cent. solution injected into the peritoneal cavity of a rabbit weighing four- and one-fourth pounds caused death in twenty-one hours. The animal showed toxic symptoms within about five minutes after the injection, evidenced mainly by drowsiness, which gradually became more marked until death ensued. The abdominal cavity, opened immediately after death, was found perfectly normal and free from congestion. These experiments show that so far as the treatment of the eye is concerned no remote toxic effects of the antiseptic need be feared.[3] It would seem also that the antiseptic could be used with safety in the treatment of genitourinary diseases. The effect produced by the absorption of large quantities of the antiseptic at frequent intervals requires further investigation.

PENETRATING POWER OF THE ANTISEPTIC.

That the effective penetrating power of the fluid is very great is indicated by its bactericidal power in the presence of albumin. The rapidity with which the fluid is absorbed was shown by the experiment just mentioned, in which thirty c.c. of the ½ per cent. solution was injected into the peritoneal cavity of a rabbit. Here toxic symptoms were produced in five minutes, whereas fifteen c.c. similarly injected produced no effect, indicating in the former case great absorption in a short time.

COMPARISON WITH OTHER ANTISEPTICS.

The bacteriologic tests already given show the ½ per cent. solution to be more powerful than a 1:1000 solution of mercuric chlorid. Tests of the latter, made under the same conditions, showed that it required two to three minutes to kill the staphylococcus aureus. It was found that more bacteria were killed in a shorter time by the mercuric chlorid, but that a few escaped for a longer time. This agrees with the finding of Abbott that a few cocci may escape even after an exposure of thirty minutes to the mercuric chlorid solution. Silver nitrate in 2 per cent. solution, which was once generally used in treatment of gonorrheal ophthalmia, but now largely abandoned on account of its irritating qualities, requires between four and eight minutes to kill the staphylococcus aureus. It is, moreover, precipitated by albumin and sodium chlorid. I found argyrol, the silver compound now most used for this purpose, to require, even in a freshly-prepared 50 per cent. solution, at least thirty minutes to destroy the staphylococcus aureus. A 12 per cent. solution failed to destroy the same organism after an hour's exposure. Contrary to statements sent out by the manufacturers of this preparation, I found that it was precipitated by albumin. When the 50 per cent. solution was mixed with an equal quantity of saturated albumin solution it failed to kill the staphylococcus after an exposure of three hours, thus showing that it possesses no effective penetrating power. It was found also that argyrol was precipitated by urine. Spores of the hay bacilllus were not destroyed by a 50 per cent. solution of argyrol after an exposure of twenty-four hours.

To explain how the antiseptic destroys bacteria is difficult. It seems most likely that the death of the bacteria is due to the replacement of some important radicle in their protoplasmic molecules by gold. This is suggested by the fact that metallic gold itself is antiseptic. Gold is so easily precipitated from the solution that it is almost as if the organisms were exposed to nascent gold. To explain why the solution will kill bacteria in less than a minute, while it requires hours to react with albumin, and to explain its harmlessness to the tissue cells, is also difficult. The first explanation that suggests itself is that the phenomenon is due to some peculiarity in the protoplasm of the bacteria. Possibly it is dependent, in part, at least, on the small size of bacteria. Thus if one micron is assumed to be the average diameter of a bacterium and twenty microns that of a tissue cell, the relative volumes of the two would be as 1:800. According to this ratio, if the bacterium was killed by an exposure of one minute, the tissue cell would require an exposure of about twelve hours. Moreover, it would seem that such a slow antiseptic action as this might be overcome by the vital activity of the cell.

In connection with this aspect of the subject, Dr. Henderson has made some observations, indicating a physical basis for the bactericidal action of the antiseptic, which he has kindly described in the following note:

PHYSICAL PROPERTIES OF THE ANTISEPTIC.

LAWRENCE J. HENDERSON, M.D.*

The solution described above, sodium aurate acidified with boric acid, in which the chemical equilibrium between the various constituents has not been determined, possesses two important properties which must contribute to the knowledge of its action on micro-organisms.

The one of these, which was investigated with the Overton-Hans Meyer theory of narcosis in mind, is the ability of the solution to give up gold to neutral olive oil when shaken up with that solvent. It was found in four experiments, on shaking together neutral olive oil and a solution of 0.7 per cent. of sodium aurate acidified with boric acid, separating the two phases in a separatory funnel and drying the oil with calcium chlorid, that the oil always contained gold, as was proved by heating the oil, thereby reducing the gold compound to metallic gold, which colored the liquid red. In the aqueous phase the gold was determined by precipitating it as sulphid and weighing the resulting metal. In all cases the amount of gold remaining in aqueous solution was markedly decreased 25 per cent., but variations in acidity of the solutions influenced the equilibrium of partition between the two solvents.

The significance of this solubility of gold in oil depends on the fact that the lipoids of the cell wall, lecithins, cholesterin, etc., manifest much the same solvent action as oil, so that in this case, as in the case of the narcotics, the penetration of the foreign substance into the cell is to be explained by a simple physical mechanism.

3. In connection with the application of antiseptic solutions to the eye I suggest what is believed to be a new method. This consists in building a sort of dam, as it were, around the eye, extending from the nose to the temple and as close to the eye as possible. As material for the dam, Dr. E. J. Hussey suggested the use of ordinary carpenter's putty, and in actual practice this has answered the purpose admirably. When the patient is reclining, and the small cistern formed in this way is filled with fluid (about 10 c.c.) not only the cornea and entire conjunctival sac are exposed to the action of the antiseptic but the lid margins and surrounding skin also.

* From the Laboratory of Biologic Chemistry of the Harvard Medical School.

The second significant fact is that this solution, almost ineffective itself to coagulate egg albumin, rapidly, and under proper conditions, completely coagulates that mixture of proteids, when reduced in its presence by ferrous sulphate or other substances. This was proved by mixing in three cylinders, 1, gold solution + egg albumin; 2, ferrous sulphate + egg albumin; 3, gold solution + egg albumin + ferrous sulphate.

In the first two cylinders a cloud appeared only on standing and did not become heavy for hours. In the third cylinder the gold was immediately and completely reduced, a voluminous precipitate resulted, and in a portion of the filtrate from this precipitate it was impossible to find albumin.

It has been shown by Dr. Verhoeff that bacteria which have been killed by this gold solution are colored with metallic gold. This intracellular reduction may be due to numerous factors, but oleic acid alone is enough to bring it about by a reaction analogous to the well-known osmic acid staining reaction. It is probable, as in the experiment described above, that within the cell during the reduction of the gold the cellular proteids are coagulated and the organism killed.

Special Article

THE PHYSICIAN AND THE PHARMACOPEIA.*

CHAPTER V.

DIURETICS.

Diuretics and diaphoretics may be considered together since they are often used for the same purpose, the one being used to supplement the other, and because the same agent which produces diuresis under certain conditions, may cause diaphoresis when these conditions are slightly changed.

Diuretics may be divided broadly into those which influence the circulation, and those which act on the secretory cells of the kidney. Though the same agent may possess both actions to some extent, we shall consider these remedies with reference to the principal effect according to this classification.

While the exact mechanism of urinary secretion remains a problem, the indications for diuresis and the method of causing it are fairly clear. When the official remedies fail to produce this effect we may usually attribute the failure to the condition of the kidney, feeling sure that the secretory cells are incapable of performing their function and that nothing short of the creation of new cells can be effective. Even this task would not be beyond the powers of some of the much vaunted mineral waters and nostrums if we are to believe the statements made in the circulars and other advertisements of the proprietors.

Diuretics are especially indicated in dropsy of cardiac, or even of renal, origin, provided the cells are capable of free secretion. In renal dropsy agents of the first class (those which influence the circulation), or those which mildly stimulate the kidney cells without producing irritation, are to be preferred. If the renal cells are incapable of increased secretion, diaphoresis should be resorted to in order to give rest to the kidneys.

Diuretics are also important in causing the removal of toxins and substances which form concretions (urates and phosphates).

Digitalis.

Nearly all authorities agree that digitalis is the most important of the official remedies in the treatment of dropsy of cardiac origin, its action being directed mainly toward the increase in the efficiency of the heart, with a consequently improved circulation in the kidney and increased diuresis. For this purpose the tincture is frequently employed, but, perhaps, the most efficient remedy is the combination of digitalis with squill and calomel, commonly called Niemeyer's pill.[3]

The official squill, which is described in Chapter II, is too irritant to permit of its employment in nephritis. This is very important and should be borne in mind if one uses any of the much-heralded diuretic nostrums which contain squill or its active principles.

That squill is extremely active in causing a watery diuresis is true, but in overdoses it is equally potent to lessen or even to suppress the flow by reason of its irritant action. This may result in bloody urine. This irritant action may serve to explain the "malaise" and some other ill effects resulting from the misuse of squill, or nostrums containing it, when it is specifically contraindicated.

The dose of squill, in powder, is 0.05 to 0.1 gm. (one to two grains) every three hours until some nausea occurs.

DIGITALIS.—U. S.—Digitalis, Foxglove. The dried leaves of *Digitalis purpura* are collected from the second year's growth. First used for scrofula, its diuretic properties were discovered by Withering about 1775, when it leaped into popularity and is now official in all pharmacopeias.

Owing to the variability of the cheaper grades of digitalis, it is well to insist on the English or on a comparatively fresh leaf of the second year's growth.

There is much confusion in regard to the use of the terms digitalin and digitaline (not digitalein), but it is hardly advisable to consider the subject extensively in this place. Commercial digitalin, i. e., that found in the shops, consists of variable amounts of the active principles of digitalis. The term digitaline (not digitalein) is misleading and should be avoided. Digitoxin has recently been brought into prominence, but it is better to confine ourselves to the use of the powdered leaves and the official preparations, the latter being very commonly prescribed alone; indeed, there is still so much obscurity about the chemistry of digitalis that the physician will do well to avoid the use of any of the isolated active principles. It is to be remembered that the action of digitalis is elicited slowly, and that it is sometimes necessary to precede it with a more promptly acting drug, such as caffein or strophanthus. The several preparations of digitalis are given at intervals of from four to six hours.

Their use in cardiac insufficiency will be discussed later.

Average dose: 0.05 gm. (50 mg. or 1 grain).

Of the preparations of digitalis the most desirable, when diuresis is the main factor, is:

INFUSUM DIGITALIS.—U. S.—This represents 1.5 per cent. of the leaves extracted with boiling water, flavored with cinnamon water and preserved with 10 per cent. of alcohol.

Owing to the development of principles with a picrotoxin action in the infusion which has been kept for a long time, it should be freshly prepared when dispensed.

Average dose: 8 c.c. (2 fluidrachms).

TINCTURA DIGITALIS.—U. S.—This is now of 10 per cent. strength instead of 15 per cent. as formerly.

Average dose: 1 c.c. (15 minims).

FLUIDEXTRACTUM DIGITALIS.—U. S.—This is made with diluted alcohol.

Average dose: 0.05 c.c. (1 minim).

EXTRACTUM DIGITALIS.—U. S.—This is made by evaporating the fluid extract to a pilular consistence.

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* A typographical error occurred in the "typical ipecac prescription," in Chapter II of this article in THE JOURNAL, Dec. 23, 1905, page 1951. In the first column the amounts of ammonium chlorid and syrup of tolu are not correct in the apothecaries' system, the drams and ounce signs having been transposed. Our attention was called to this early, but we considered the error so apparent that no physician would fail to recognize it, so we made no mention of it in THE JOURNAL. As correspondents continue to write about it, however, we call attention to the error and acknowledge their kindness in writing.

3. The formula for this pill is as follows:

℞ Pulvis digitalis
Pulvis scillæ, āā.....grs. x | 60
Hydrarg. chloridi mit.....grs. 1 ¼ | 08

This amount is to be divided into ten pills, or preferably, capsules. One of these pills every three hours will be found effective. The calomel is often omitted, or it may be replaced by 0.06 gm. (1 grain) of the blue mass (massa hydrargyri) in each dose, if it is to be made into pills, or gray powder (hydrargyrum cum creta), if into capsules.

Average dose: 0.01 gm. (10 mg. or 1/5 grain).

Strophanthus.

Rather closely resembling digitalis in its action on the heart and as a diuretic, if indeed, it may not surpass the older drug in the latter case, is strophanthus, which does not cause the same degree of vasoconstriction which sometimes interferes with or prevents the diuretic action of digitalis. It is mostly used in the form of the tincture.

While strophanthus has some advantages, such as the more prompt action and a slighter tendency to cause cumulative effects, clinicians have not found it so generally useful as digitalis.

The powerful action of strophanthin as a local anesthetic, though denied, has been well established.

STROPHANTHUS.—U. S.—The ripe seed of *Strophanthus kombé*.

TINCTURA STROPHANTHI.—U. S.—This is now of 10 per cent. strength—just double that formerly official.

Average dose: 0.5 c.c. (8 minims).

STROPHANTHINUM.—U. S.—This consists of one or more glucosids on which depend the medicinal properties of strophanthus.

Average dose: 0.0003 gm. (0.3 mg. or 1/200 grain).

Apocynum.

APOCYNUM.—U. S.—This drug has enjoyed a considerable reputation in domestic practice as a remedy in dropsy, but appears to be inferior to digitalis in the same group to which it belongs.

H. C. Wood, Jr., believes that this drug deserves more attention as a cardiac stimulant than it has hitherto received.

It is not used in substance; instead its liquid preparations are used.

FLUIDEXTRACTUM APOCYNI.—U. S.—This is the only official preparation.

Average dose: 1 c.c. (15 minims).

Caffein.

When cardiac stimulants or other agents cause such vasoconstriction as greatly to lessen the amount of blood which passes through the kidney, and consequently the diuresis, a vasodilator is sometimes employed, but it is more rational to avoid the necessity for this when possible.

When the object of diuresis is to get rid of fluid which has accumulated, it is, of course, better to avoid unnecessary amounts of water, and in such cases diuretics are given in solid, or at least concentrated, form.

Caffein is the most prominent of the official drugs which produce diuresis mainly by action on the kidney cells. While digitalis may act slightly on the kidney cells, but mainly on the heart, caffein, on the other hand, acts mainly on the cells of the kidney and much less on the heart. It may, however, cause such considerable vasoconstriction as seriously to lessen the amount of blood passing through the kidney and the diuresis in consequence, in that case the unofficial theobromin might be employed, as this is said to interfere much less with the circulation. Dr. G. N. Stewart states that caffein causes a passing vasoconstriction in the kidney with lessened diuresis, soon followed by vasodilation with increased diuresis.

When cerebral excitement (a tendency to wakefulness) is to be avoided, caffein is contraindicated.

Caffein is a constituent of tea, coffee, kola, and more abundantly (5 per cent.), of guarana, which is official.

Caffein is not very soluble in water or alcohol, but its solubility in water is greatly increased by such salts as potassium bromid, and sodium benzoate or salicylate; this well-known fact has been appropriated as a "discovery" by manufacturers of certain nostrums.[4]

CAFFEINA.—U. S.—This is a feebly basic (alkaloidal) substance obtained from *Thea sinensis, Coffea arabica* or other plants. It does not form stable salts.

Average dose: 0.05 gm. (50 mg. or 1 grain).

Two soluble forms of caffein are:

CAFFEINA CITRATA.—U. S.—This consists of equal parts of caffein and citric acid.

Average dose: 0.1 gm. (2 grains).

CAFFEINA CITRATA EFFERVESCENS.—U. S.—This contains 4 per cent. of citrated caffein.

Average dose: 4 gms. (60 grains).

Diuretin is a mixture of theobromin and sodium salicylate, while agurin consists of theobromin, sodium and sodium acetate. Mixtures of caffein and lithium benzoate or salicylate are also used. Diuretin is decomposed on exposure to the air and becomes much less soluble.

When caffein or other diuretics produce a more than temporary vasoconstriction in the kidney, one drop of the 1 per cent. solution of nitroglycerin may be given at the same time.

The usefulness of hot tea as a diuretic is too well known to require further comment.

The official sugar of milk and the unofficial urea cause diuresis, probably by acting on the renal epithelium.

Scoparius.

SCOPARIUS.—U. S.—This is sometimes incorrectly classed with digitalis because it slows the heart, but it weakens the beat while digitalis strengthens it. The alkaloid, spartein, is responsible for the cardiac and vasoconstrictor effect of scoparius, but the diuretic effect is due to scoparin, a glucosid.

Average dose (of scoparius): 1 gm. (15 grains).

The infusion or decoction is recommended for producing diuresis, except in dropsy.[5]

Spartein.

SPARTEIN SULPHATE.—U. S.—While this is obtained from scoparius it is not a diuretic.

Average dose: 0.01 gm. (1/5 grain), but this dose is sometimes considerably exceeded.

Irritants.

Irritants which are excreted by the kidneys produce diuresis but, of course, they must not be used in greater amounts than are necessary to produce a mild stimulation. They are contraindicated in nephritis.

The use of calomel in connection with squill and digitalis has been mentioned. It is most useful in cardiac dropsy and its use is to be stopped when the diuresis becomes free. It may be given in doses of 0.2 gm. (3 grains) three times daily, or in the form of Niemeyer's pill.[3]

Volatile Oils.

The irritants include a number of volatile oils which are much more frequently used for their antiseptic action on the urinary tract than for any slight increase in renal action which they may cause. They include such volatile oils as oil of turpentine (oleum terebinthinæ) and oil of juniper (oleum juniperi), which are more often used as diuretics than copaiba, cubeb and matico, which are employed mainly as antiseptics.

Hexamethylenamin.

The volatile oils have been largely superseded as urinary antiseptics by the now official synthetic hexamethylenamin.[6]

HEXAMETHYLAMIN.—U. S.—(Hexamethylen tetramin). This is a condensation product produced by the union of formaldehyd and ammonia. While free from the irritating effect of formaldehyd it yet retains its antiseptic properties, the formaldehyd being gradually set free by dilute acids, etc. Being an ammonium derivative, a solvent effect on uric acid, etc., has

4. The following mixture, to be varied according to needs, represents the method of using caffein in this soluble form:

Caffein (alkaloid)		
Sodium salicylate, āā	℥i	4
Cinnamon water to make	℥iii	100

Each teaspoonful contains about 0.2 gm. (3 grains) of caffein. Sodium benzoate or lithium salicylate or benzoate may be substituted for the sodium salicylate. This formula requires no unusual pharmaceutical skill to compound and the cost is very much less than that of the proprietaries used for the same purpose.

5. Scoparius
Potassium bitartrate, āā ..... ℥ss 15

This quantity of material is to be added to 1 liter (1 quart) of water, in a suitable vessel, boil for ten minutes. Allow to cool and strain. A wineglassful of the resulting decoction may be given every hour.

6. The official name is very cumbersome, but no satisfactory substitute has thus far been suggested. Hexamethylenamin was first brought before the profession by Schering under the trade name of urotropin (Schering and Glatz), and it is still sold by them under this name. It is also on the market under various other trade names, such as aminoform, formin, cystogen, and others.

been claimed for it, just as for lithium salts. It is readily soluble in water and is best given in solution.

Average dose: 0.25 gm. (4 grains).

This substance has been introduced with some slight modification under various names; usually the modification is only sufficient to enable the manufacturers to say that their product is not identical with the official. For instance, helmitol is anhydromethylen citric acid with hexamethylenamin. Uriform embraces two other drugs of minor importance. The official preparation may be considered at least equal to them, since it is not modified by any useless or inferior products, and is readily controlled by chemical tests for purity.

Uva Ursi.

Another drug of this class which has been the subject of much dispute is uva ursi. Its principal usefulness is probably in catarrhal conditions of the urinary tract. It contains a glucosid, arbutin, which is decomposed, partly perhaps in the kidney, but more abundantly in contact with catarrhal mucous membrane, hydrochinon, an antiseptic, being formed.

UVA URSI.—U. S.—The dried leaves of *Arctostaphylos uva ursi*, of which the only official preparation is:

FLUIDEXTRACTUM UVA URSI.—U. S.

Average dose: 2 c.c. (30 minims).

Infusion of uva ursi is made according to the general formula for infusions by pouring 1 liter (1 quart) of boiling water on 50 gms. (1 oz. 5 drs.) of bruised uva ursi.

The fluid extract or the infusion may be given alone three or four times daily.

Chimaphila.

CHIMAPHILA.—U. S.—The dried leaves of *Chimaphila umbellata*, commonly called pipsissewa. It was introduced in America by Dr. John S. Mitchell in 1803, and later into England.

Its medicinal action closely resembles that of uva ursi, to which, however, chimaphila is inferior.

FLUIDEXTRACTUM CHIMAPHILÆ.—U. S.

Average dose: 2 c.c. (30 minims).

Acetates and Citrates.

There remains to be considered an important class of substances, which are used as diuretics, but they are so well known that only a very brief notice is needed here.

The acetates or citrates of sodium and potassium increase the alkalinity of the blood and lessen the acidity of the urine or render it alkaline; they also increase diuresis. Potassium bitartrate and nitrate are also widely used as diuretics, mainly as additions to mixtures. For this purpose they are largely diluted with water, the latter alone being the most commonly used of all diuretics.

Cantharides is very rarely used for its effect on the kidneys, as it is extremely irritant.

The methods used for producing diaphoresis are analogous to those employed for diuresis, consisting in those which influence the circulation and those acting on the sweat glands; but in addition, certain agents, notably, solution of ammonium acetate, act on the sweating center.

The circulation in the skin is readily influenced by the application of heat in numerous ways and by what amounts to the same thing, the prevention of its loss by an impervious cover, such as oiled silk or by agents which cause dilation of the vessels of the skin, such as hot alcoholic drinks and spirit of nitrous ether. Everyone is familiar with the sweating of nausea, and while any nauseant will cause diaphoresis, the only one which is generally employed for the purpose is the powder of ipecac and opium, the well-known Dover's powder. The only official substances used for the purpose which directly stimulate the secretion of sweat are pilocarpus and its alkaloid, pilocarpin. They do not act on the secretory cells as caffein does on the kidney, but by stimulation of the secretory nerves.

Diaphoretics are employed to arrest "colds" in the early stages, to aid in getting rid of fluid accumulations, as in dropsy, and to a lesser extent for getting rid of excretions. Diaphoresis often serves to relieve the kidneys or to supplement their action. Vegetable infusions which cause diuresis will usually cause diaphoresis at the same time if the patient is kept warm and measures are taken to increase the blood supply of the surface (rubbing, mustard, etc.).

For the arrest of "colds" nearly anything causing sweating seems to be effective, but the powder of ipecac and opium mentioned in Chapter II enjoys a particular reputation.

PULVIS MORPHINÆ COMPOSITUS.—U. S.—Compound powder of morphin, also known as Tully's powder, containing 1.5 per cent. of morphin and 32 per cent. of camphor, has also been recommended, and is sometimes used, as a diaphoretic, in place of the older and more popular Dover's powder.

Average dose: 0.5 gm. (7 grains).

Potassium citrate, referred to as a diuretic, is much used for its diaphoretic effect, particularly in the form of:

LIQUOR POTASSII CITRATIS.—U. S.—This is a watery solution of potassium citrate, containing about 8 per cent. of anhydrous potassium citrate.

Average dose: 15 c.c. (4 fluidrachms).

SPIRITUS ÆTHERIS NITROSI.—U. S.—Sweet spirits of niter. This is a very generally popular diaphoretic which is also used as a diuretic in fevers,

Average dose: 2 c.c. (30 minims).

LIQUOR AMMONII ACETATIS.—U. S.—The old-time spirit of Mindererus.

Average dose: 15 c.c. (4 fluidrachms).

Pilocarpus.

The only official drugs which have diaphoresis as their predominant therapeutic action are pilocarpus and its alkaloid, pilocarpin. They are both too well known to require very extended notice in this place.

PILOCARPUS.—U. S.—Pilocarpus or jaborandi leaves contain, by assay, not less than 0.5 per cent. of alkaloids.

Average dose: 2 gm. (30 grains), given occasionally in the form of a 5 per cent. infusion, made according to the official general formula for that class of preparations.

FLUIDEXTRACTUM PILOCARPI.—U. S.—This is made with diluted alcohol and contains 0.4 per cent. of the alkaloids from pilocarpus.

Average dose: 2 c.c. (30 minims).

PILOCARPINÆ HYDROCHLORIDUM.—U. S., and

PILOCARPINÆ NITRAS.—U. S., are therapeutically identical. They are both very soluble in water.

Average dose of either: 0.01 gm. (1/6 grain).

Clinical Report

A CASE OF CARCINOMA OF THE PANCREAS.

WITH NEGATIVE SO-CALLED PANCREATIC REACTION; CHOLECYSTENTEROSTOMY.

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In a series of 53,000 cases of carcinoma collected from European institutions, in which careful postmortem records are kept, there were 226 cases of carcinoma of the pancreas, or 4.2 cases in every 1,000 cases of carcinoma of all organs. In the following case, in spite of repeated trials and a positive diagnosis, the so-called pancreatic reaction of Cammidge was negative. In the course of an exploratory laparotomy cholecystenterostomy was performed to relieve distress from absorption of bile and pain due to pressure of distention of the bile tract and accomplished the purpose.

Patient.—D. A., farmer, 58 years old, married, born in England, residence Bloomington, Wis., was referred to me June 26, 1905, by Dr. J. M. Lewis of the same place.

Family History.—Negative, except that his father died of "stomach trouble."

Previous History.—In this the only conspicuous features are sciatic rheumatism, so-called, from time to time for several years and previous to ten years ago, excessive use of alcohol. Patient denies venereal disease.

Present Illness.—This seems to date back two and one-half years to an accident whereby he was thrown from a wagon and struck on back of neck and small of back. Following the accident and lasting for two months there was paralysis of both upper extremeties. This cleared up spontaneously. The bowels, previously naturally regular, have not moved since without the aid of drugs, and this condition has been getting progressively worse. His best weight five and one-half years ago was 200 pounds and at the time of accident was 175. Whereas patient dates the beginning of his illness with the occurrence of the accident, his present condition probably really began to manifest itself in December, 1904. At this time patient weighed 170 pounds, and since then his weight has progressively fallen to 130. With this rapid decline in weight his strength, too, began to fail and has kept pace with the loss of weight. Acompanying the constipat on which followed the accident indigestion began, but it was not until December, 1904, that this became more than ordinarily marked. In March, 1905, dyspeptic symptoms became pronounced. These consisted of loss of appetite, especially for meats; distress after eating, with belching, water brash and nausea. In April, 1905, pain began in the right upper quadrant of the abdomen, extending downward on the right side of the abdomen, around the lower ribs on the right side to the back and across the upper half of the abdomen. The character of the pain varied from a dull ache, which was almost constant, to severe paroxysms of acute pain. The pain was remarked to be worse at night. Further, the pain was aggravated by constipation and relieved by catharsis. At this time patient detected a lump in the upper right quadrant of the abdomen. Early in May bronzing of the skin set in. Toward the end of May, without regard to pain, vomiting began. This occurred especially after meals and also before breakfast. For the last two weeks patient has vomited in the evening what was eaten during the day. One week ago jaundice set in insidiously and has become rapidly and progressively deeper. Considering the amount of food eaten, the stools were noticeably bulky and contained undigested food particles. Fat in the stools was not remarked, and there has been no diarrhea. Since the jaundice set in the stools are lighter in color and the patient has felt weaker. The bronzing of the skin has also been obscured by the jaundice. The patient was alarmed about his condition by the pain and the onset of jaundice.

Examination.—The patient was a man of six feet or more, well developed but poorly nourished. The skin and conjunctivæ were deeply pigmented with bile, but no subcutaneous hemorrhages were made out. The history of the accident was borne out by a well-marked kyphosis in the mid-cervical region. Here, instead of a convexity forward, there was a convexity backward of the fourth, fifth and sixth cervical vertebræ. The thorax was negative. Bilateral inguinal, and saphenous, and right supra-clavicular lymphatic glands were moderately enlarged, firm, smooth, movable, discrete and not tender. Knee jerks were present, but feeble. There was no edema of the ankles. Per rectum prostate and adnexa were negative, as also were the external genitals. Pulse was 72, temperature 99 and respiration 20. The abdomen on inspection revealed the light and shadow of a mass in the upper half of the abdomen. Pulsation over the mass was visible. On palpation a large, smooth, firm mass, nodular on a large scale, was made out extending across the abdomen almost from rib to rib, the lower border being on a level with the umbilicus. The mass was but slightly movable and tender on deep pressure only. Immediately around and behind the umbilicus deep resistance was made out merging above with that of the mass mentioned. The mass measured roughly seven inches across by three inches vertically. It was greater in the antero-posterior and vertical planes on the right side of the median line. Pulsation of the mass was marked. Above the mass there was an area of resonance filling the epigastrium and extending particularly to the left behind the ribs. On the right the outline of the mass was less distinctly followed along the costal margin downward. The liver dullness extended from the fifth rib to one finger's breadth below the costal margin in the mammillary line. Opposite the ninth rib, beneath the liver, could be indistinctly felt a large, smooth, rounded mass about the size of a small orange, fading away above and to the left into the larger mass. This evidently represented the gall bladder. On bimanual palpation the right kidney was found negative, likewise the spleen. No ascites was made out. On dilatation of the stomach with air resonance was found over the epigastrium extending upward behind the xyphoid cartilage and well to the left behind the ribs. Below this area of resonance the mass remained immovable and unaffected by respiration and manipulation. At the same time the tumor mass seemed to be near the anterior abdominal wall, dividing the cavity into upper and lower sections, the upper having the stomach resonance and the lower that of the colon and small intestines. The floor of the upper section on deep palpation seemed to have a shelving surface, with the dilated stomach more superficial than the mass.

Fluid dilatation showed the stomach capacity to be forty-six ounces. After a test meal of toast and tea the stomach contents gave a negative reaction to litmus, no free HCl., and a positive reaction to lactic acid. With air dilatation the stomach orifices leaked perceptibly. Urinalysis gave sp. gr. 1007, faintly acid reaction, slightest possible trace albumin, no sugar, bile present, indeterminate sediment, and negative so-called pancreatic reaction.

The patient was told frankly that in all probability he had a malignant growth, that it was either in the stomach or in the pancreas, that an operation would probably be of no permanent and perhaps of no temporary benefit, but that an exploratory opening of the abdominal cavity would settle the diagnosis and might suggest an operation for relief of some of the symptoms. With this understanding the patient requested the operation, and asked to have done whatever was indicated in the premises.

Operation.—Accordingly the abdomen was opened June 28 by an incision through the right rectus near the median line above the umbilicus. The stomach was found normal, but pushed upward by the mass. The pylorus was normal. The colon and omentum were found normal. These were brought out of the wound, revealing the enlarged pancreas stretching across the posterior wall and extending well to the left of the spinal column. The gland was greatly enlarged, especially on the right, hard and nodular. On the surface of the mesocolon and adjacent coils of intestines were numerous small, pearly, opaque, hard, nodules, irregular in size and shape. These with the enlarged retroperitoneal lymphatics accounted for the deep resistance on palpation about the umbilicus. Specimens of these nodules were removed and proved on histologic examination to be medullary carcinoma. To the right the gall bladder was found distended to the size of the bulb of a three-ounce ear syringe. It was soft, but not easily compressible. The cystic, hepatic and common ducts were distended to the size of the little finger. No stones were made out. The head of the pancreas was greatly enlarged, and a process of the gland surrounded the junction of the common duct and duodenum. This process passing around to the right from behind the duodenum almost reached the main body of the head on the left and constricted the lumen of the duodenum.

Realizing that the situation was hopeless for cure and that the common bile duct was completely occluded, while the lumen of the duodenum was only constricted and would probably remain patent till death from intoxication and starvation occurred, I concluded to do choleeystenterostomy. This was done with a Murphy button at the hepatic flexure of the colon. Patient rallied from operation well. His pain, he said, was much less, and by the third or fourth day jaundice had practically disappeared. His appetite began then to improve and his mind became more active.

Subsequent History.—He returned home the twelfth day after operation, relieved of the jaundice and much of his pain. He is reported to have died August 13 and to have suffered severe pain the last few days. During the time after operation pancreatin was administered after eating with benefit to digestion.

In view of the reliance placed on the so-called pancreatic reaction of Cammidge[1] by Robson[2] undue weight was given to the negative result before operation in the diagnosis. This feature and the greater frequency of carcinoma ventriculi seemed to favor, on the doctrine of chances, cancer of the stomach with adhesions and extensions involving the common bile duct and immobilizing the mass. After the diagnosis became established further tests were performed before and after jaundice disappeared. All the tests were uniformly negative, in spite of care in following the author's directions and the use of reliable reagents. Instead of the characteristic crystals a brownish amorphous deposit was obtained. It is not my intention to impeach the value of the reaction, but rather to enter a plea for more light on the subject to the end that the reaction which Robson has found of signal value in this difficult class of cases may be made susceptible of general application.

Cholecystenterostomy has been held by many to be a questionable procedure in this class of cases, offering but slight benefit at the expense of some hazard and the usual discomfort following the operation. In the case in question the toxic symptoms of bile absorption and much of the pain—a large share of which seemed to be due to pressure from the distended bile tract—were relieved. In view of the comparatively slight postoperative reaction the patient stated, on having the question put squarely to him, that he considered it worth the discomfort to obtain a definite diagnosis and be relieved of the worst of his suffering as long as might be.

New Instrument

METALLIC TUBES FOR CONTINUOUS IRRIGATION AFTER PROSTATECTOMY AND FOR DRAINAGE AFTER PERINEAL SECTION.*

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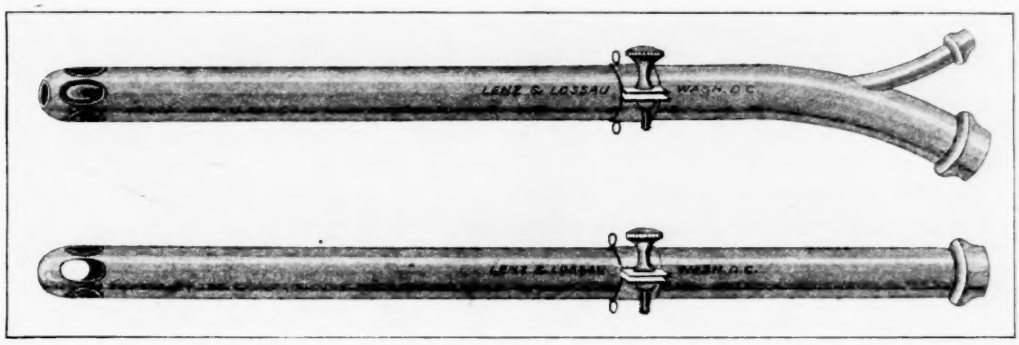
The difficulty often encountered in introducing the rubber tube after perineal prostatectomy, especially if the prostatic urethra is injured, as well as the tendency of the tube to become plugged, thereby necessitating the removal of the tubes with the sutures and packing from the perineal wound, led me to experiment with metallic tubes, resulting in the instrument described below, which in my hands has proved very satisfactory. The tube for continuous irrigation is 12.5 cm. long, the size of a No. 32 French catheter. It is composed of a larger tube into which a smaller one is incorporated. At the vesical end are two openings, the larger being the outflow, the smaller the inflow. At the distal end the tube diverges, the larger one being attached to a drainage tube that is carried to a bucket under the bed; the smaller for the attachment of the tube from a fountain syringe, which is suspended two or three feet above the patient. After the tube is inserted it is held in place by a movable steel collar, controlled by a thumbscrew. Attached to the sides of the collar are two small rings, through which are passed the retention sutures from the perineal wound. By loosening the thumbscrew the tube can either be pushed farther in or drawn out without disturbing the dressings. If the tube becomes occluded it is very easy to remove it through the collar and replace it again in the bladder without disturbing the packing in the perineal wound. Until this instrument was devised I used two catheters stitched together, as advised by Dr. Young of Baltimore.

If the bladder is badly infected the irrigations are kept up for four or five days, or even longer; if not infected the continuous irrigation is stopped as soon as the fluid from the bladder comes away free of blood.



The tube is allowed to remain in place for twenty-four hours after the hemorrhage has stopped. It is then removed, but the collar is left hanging to the perineal sutures. In this way, if a hemorrhage should occur and it was found necessary to replace the perineal tube, it could easily be done by passing it back through the collar to its proper position in the bladder and it is then securely held in place by tightening up the thumbscrew.

The advantages of continuous irrigation in these cases are: 1. The coagulation of the blood from any hemorrhage that may take place in the bladder and occlude the tube, as occurs in a tube without continuous irrigation, rarely occurs. 2. The liability to sepsis is lessened. 3. The patient is comfortable and does not have to be disturbed by irrigations.

The instrument for perineal drainage, where continuous irrigation is not indicated, consists of a tube 12.5 cm. long, the size of a 30 French catheter, with four openings in the vesical end (Fig. 1). The distal end has a shoulder to hold the rubber tube, which passes into the drainage vessel. The tube is held in the perineal wound by the collar as described in the instrument for continuous irrigation. The drainage through this tube is excellent, as the caliber is large and easily cleaned by irrigation.

My experience with both these tubes covers a number of cases in all of which the results were more satisfactory than with any other form of drainage tubes which I have used.

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1. Abstract of the Arris and Gale lecture on the "Chemistry of the Urine in Diseases of the Pancreas," by P. J. Cammidge, British Med. Jour., April 2, 1904. Also "Surgical Aspect of Digestive Disorders," p. 287, by J. G. Mumford and A. K. Stone.

2. "The Hunterian Lectures on the Pathology and Surgery of Certain Diseases of the Pancreas," by A. W. Mayo Robson, Lancet, March 19 and 26, April, 2, 1904. Also "Diseases of the Pancreas," by A. W. Mayo Robson and B. G. A. Moynihan. "Diseases of the Pancreas," by L. Osler, edited by R. H. Fitz in Nothnagel's Encyclopedia.

*Presented before the Medical Society of the District of Columbia, 1905.

Opium in Australia.—The various Australian states having agreed to prohibit the sale and growth of opium, the government of the commonwealth has prohibited the importation of opium except for medicinal purposes. All the states will lose revenue by the prohibition, the loss to Queensland alone, it is said, being estimated at $80,000 yearly.

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THE ETIOLOGY OF GALLSTONES.

The activity in bacteriologic investigation which characterized the eighties of the last century led to numerous discoveries and numerous mistakes. Diseases which by analogy ought to have been bacterial were stated to be due to organisms which were afterward shown to be contaminations, and, on the other hand, diseases which at first sight seemed far removed from bacterial action were shown to be intimately associated with micro-organisms. Among the conditions which were investigated at this time were those associated with the formation of salivary calculi, and Galippe, who cultivated bacteria from these concretions, not only assumed a causal relation between the germs and the calculi, but predicted that other forms of calculi would be shown to be of bacterial origin.

So far as the bacterial origin of gallstones is concerned, it was Naunyn who first gave his unreserved support to this view of their origin. The view was not, however, generally accepted, for some observers took the ground that the presence of gallstones favored biliary infection and denied that the infection was the primary process and responsible for the formation of gallstones. The mere presence of bacteria, even in the interior of gallstones, was clearly not proof that the bacteria caused the stones, and it became more and more obvious that the matter could only e cleared up by the experimental method. The early experiments were many of them unsuccessful, though Gilbert and Fournier obtained an experimental stone in a dog as early as 1897. Since then a large number of studies have been made, mainly by the French school, and in a considerable number of instances experimental gallstones have been produced.

The rôle played by various factors in the stone formation has been recently reviewed by Lartigau[1] in a valuable paper, in which he also records the result of a large series of personal experiments. The main opponents of the bacterial theory of gallstones have maintained that the process of their formation was mechanical and due to the presence in the gall bladder of foreign material. Various studies, including those of Lartigau, have shown that the mere presence of an aseptic foreign body does not suffice to produce gallstones. The introduction of pieces of cotton, fragments of human calculi, grains of wheat and other irritating substances does not lead to calculus formation even when the outflow of bile is partially obstructed. On the other hand, the introduction of bacteria associated with mechanical irritation of the mucosa is followed in a considerable percentage of cases by the formation of stones. If at the time that bacteria are introduced the outflow of the bile is interfered with, or aseptic foreign bodies are also put into the gall bladder, the chances of stone formation become much greater. Thus of nine rabbits inoculated by Lartigau in which the outflow of bile was partly obstructed when the bacteria were introduced eight developed stones, and almost as high a percentage of successes resulted from the introduction of foreign bodies with the bacteria.

The mode of action of bacteria in producing gallstones is still obscure. The chronic cholecystitis which they produce is associated with desquamation of epithelium, and this in turn favors the formation of cholesterin and bilirubin-calcium. In many instances, however, this cholecystitis is not followed by the formation of stones, and some other factor must be present. It is probable that in some cases, as Cushing suggested, clumping of the bacteria may be an important preliminary step, the clumped bacteria acting as nuclei for the stones.

The point of entrance of the bacteria into the gall bladder has, until recent date, been usually regarded as the common duct. It seems natural to assume that with a relatively large channel directly connecting the gall bladder and the intestines this should serve as a carrier of bacteria. It is probable that in many instances the infection takes this route, though the importance of ascending infection at most has certainly been overestimated. The fact that in many instances gall bladder infections are due to bacteria not usually found in the duodenum is against ascending infection, and there is positive experimental evidence that bacteria introduced into the general or portal circulation may be recovered from the gall bladder; indeed, some organisms persist there when they have long disappeared from other parts of the body. Of course, there are many instances in which individuals with gallstones give no history indicating that they have ever had a general or even a severe intestinal infection, but these cases may be explained by Adami's theory of latent infection, according to which even healthy intestines allow the passage of bacteria into the portal circulation and thence into the gall bladder.

1. Cal. State Jour. of Med., January, 1906.

SOME FALLACIES OF VITAL STATISTICS.

The bewilderments that lie in the path of the wanderer in the field of statistics have long served to edge the point of the jest that statistics can be made to prove anything. One witty essayist, in an article on "How to Know the Fallacies," thus delivers himself regarding the care necessary for raising these thrifty plants: "Statistics are recommended for a mulch. By covering a bed of fallacies with a heavy mulch of miscellaneous sta-

tistical matter it is protected from the early frosts and the later drought. The ground of the argument is kept thus in a good condition. No particular care is here needed in the application of statistics; any man who can handle a pitchfork can do all that is required. I have seen astonishing results obtained in this way. No one need be deterred by the consideration of expense. In these days statistics are so cheap that they are within the reach of all. If you do not care to use the material freely distributed by the government you can easily collect a sufficient amount for yourself." Nowhere, perhaps, do fallacies spring up more abundantly and mistaken inferences flourish more rankly than when mulched with vital statistics. Inaccuracies in the collection of facts and misjudgments in the interpretation of those facts are not always easily detected, but may serve to vitiate many far-reaching conclusions and to cast doubt on not a few cherished doctrines.

Consider, for example, the use often made of the "death rate" of a community in basing comparisons of relative healthfulness and in furnishing a text for pæans on sanitary progress. How much do we really know about it all? An elaborate analysis of the available data is not necessary to reveal the presence of difficulties. In the first place it has been often pointed out that the mere ratio of deaths to the total population can have little significance, since the ratio is obviously and profoundly affected by the number of persons of different ages in the population and by the proportion of the sexes. If this be so, of how much less value must be any conclusion as to the healthfulness of a population drawn from the mean age at death? Such information as most American communities possess concerning the age distribution of their population is derived solely from the returns of the decennial census and is doubtless of varying value, not only at different times, but in different places. Even in this apparently simple matter it does not seem to be easy to obtain accurate figures, and the precise age distribution of most American city populations is far too largely a subject of conjecture. Assuming, however, that it is possible to substitute for the "crude death rate" one corrected for age and sex distribution, obstacles immediately arise to prevent us from accepting the corrected rate as a measure of sanitary well-being. The varying preponderance of certain nationalities, as Irish, Italian, Scandinavian and Slav, in urban populations is one of the factors that undoubtedly affects death rates entirely apart from any wholesomeness of environment or efficiency of sanitary organization. At present the influence of race on death rate can not be evaluated in any precise fashion.

Another factor that will occur to many physicians is the influence that birth rate must have on death rate. A steadily declining birth rate is in itself sufficient to produce a declining death rate, and unless the facts in regard to the birth rate are known it is impossible to interpret correctly a decline in the death rate, or even in some cases to compare the corrected death rates to different localities. Now, it is a notorious fact that except in certain limited districts in this country, births are reported very irregularly and incompletely and data as to birth rate for any considerable number of years are lacking. There is, of course, reason to believe that even in those parts of the United States where no full record exists the birth rate has declined in the last few decades in common with the decline that has occurred in other parts of the civilized world. How, then, disentangle a reduction in a city death rate due to diminishing births, to change in character and amount of immigration and like factors, from a reduction due to the enforcement of sanitary regulations or to improvement in conditions in life? The problem is extraordinarily complex. We need first of all much fuller and more accurate data. Until these are secured a certain hesitancy, or, indeed, an ultra-conservatism, in drawing conclusions will perhaps best commend our discretion to posterity.

MEDICAL SUBJECTS ON THE STAGE.

Medical subjects on the stage was the theme of an inaugural thesis by J. Descoust of Paris. In commenting on it, the *Semaine Médicale*, December 6, quotes the long final summary entire and states that the stage offers a powerful means of producing a profound impression on the public. Rich and poor attend the theaters and absorb ideas there which would never reach them if presented in any other form. Physicians have tried to educate the public in certain medical matters by published articles, by lectures, etc., but books are expensive, and lectures reach but a limited audience. The masses are not reached, and the zeal and activity of the medical apostles are wasted in great measure. This is why the results obtained by dramatists who have taken up this new line of presenting medical subjects have been so striking.

Descoust reviews the various plays which have been staged in late years bearing on medical topics, and studies the influence exerted by them. He remarks that such plays as Camille, l'Aiglon, etc., only refer incidentally to disease to render their characters more interesting, but Ibsen's works, illustrating the influence of heredity, are written with incomparable art, both from the scientific and from the dramatic point of view. "Henriot" is the pseudonym of one of the members of the Paris faculty of medicine, and his play of "Enquête" portrays an epileptic of the masked and criminal variety. The dramatic art of this fine piece is equal to its scientific precision. In the play of "La Nouvelle Idole," de Curel debates whether or not a physician has the right to experiment on a living human subject and whether a scientist should or should not be at liberty to use hypnotism. "Baillon," by Le Senne and Mayer, turns on the false and painful situations in which physicians are frequently placed by strict observation of professional secrecy. These medico-psychologic plays differ from the medico-social dramas of Brieux and

Bruyerre. These writers took up purely medical subjects, not merely medico-literary or medico-ethical questions. Social hygiene, professional and private, was presented on the stage in a form calculated to impress the crowds, calling attention to deplorable conditions and starting an impulse for their reform. Brieux portrayed in his "Avariés"—the "Damaged"—the havoc wrought by syphilis in families, and in his "Remplaçantes" the danger for the nurse of a syphilitic infant. He took great pains to have the scientific part of his plays correct, and cites his medical authorities in his published work.

The question whether or not such subjects do more harm than good on the stage is answered by Descoust decidedly in favor of the benefits to be derived from such a propaganda. Following Brieux's plays police regulations were enacted for the better protection of wet-nurses, and several special crêches for syphilitic children were founded by private charity. Following his play of "Maternité," associations were organized to enable women to be delivered in their homes. The organization of the Society for Sanitary and Moral Prophylaxis is also ascribed in large part to the influence of Brieux's "Avariés." The society has recently arranged a special dispensary service for syphilitics evenings and Sunday mornings, so that these unfortunates can have regular treatment which will not encroach on their working hours. Bruyerre's play "En Paix" was suggested by the incarceration in an asylum of a pseudo-insane friend. The play resulted in his liberation and a reform in the law on the subject is now under consideration.

The argument has been raised that medical subjects on the stage are an offense against public morality. Descoust asserts, however, that it can do no harm to recite what it is regarded as useful to write. In conclusion, he reiterates that the stage is a powerful means for the diffusion of ideas and a useful aid in a propaganda of enlightenment. In a fine play the spectator takes in the lesson without noticing that it is a lesson, and without weariness; and the impressions which he receives are engraved on his mind, not only by what he hears, but what he sees.

BRAIN WEIGHT IN REGARD TO MENTAL CAPACITY.

Brain weight may be said to be a subject of merely academic interest, possessing little or no practical significance. The numerous investigators who have delved into the matter, although not agreed on all points, are more or less agreed that weight of brain does not endow its possessor with superior mental faculties. Dr. Bernard Hollander, in a paper read at a conversazione of the British Ethnological Society, stated that while the average female brain is not only one inch less in circumference than the male brain and about five ounces lighter in weight, these facts do not denote even comparative "light-headedness," because the size of the entire brain is not a measure of intellectual capacity, but is a measure of capacity of all the energies taken together. The portions in which the difference between the male and female brains is more marked are those that have to do with force, energy and animal passion, all of which women possess in a less degree than men. On the other hand, those portions which are concerned with the manifestations of the feelings and emotions are more strongly developed. In short, the lesser average weight of a woman's brain does not imply that she is inferior in intellect to man. Woman, however, possesses a dissimilar mental capacity to that of man, but whether this be due to the brain or to other causes can not be stated definitely.

That brain weight has little influence on mental capacity, however, has been proved times without number. The old belief that men of real brain power had brains of great weight has been somewhat rudely overthrown of late years.

In the *Journal of the Scientific Society of Saxony*[1] Dr. F. Marchand had an article on brain weights. He weighed 1,234 brains, as a rule, immediately after their removal from the body and while still enclosed in the dura mater. His results were briefly as follows: The mean weight of brain in the male between the ages of 15 and 80 years was 1,400 grams and in the female 1,275 grams. In 84 per cent. of all adult males between the ages of 15 and 80 years the brain weighed between 1,250 and 1,550 grams. About 50 per cent. of the brains examined weighed from 1,300 to 1,450 grams; 30 per cent weighed over 1,450 grams, and only 20 per cent. weighed under 1,300 grams. As to women's brains, 91 per cent. of all the adults had a brain weight of between 1,100 and 1,450 grams, 35 per cent. weighed 1,200 to 1,350 grams, 20 per cent. over 1,350 grams, and 25 per cent. below 1200 grams. It was ascertained by the investigator that the brain weight at birth doubled in the course of the first nine months of life and trebled before the expiration of the third year. From this date the increase was much slower in females than in males. The brain of the male reached its definite or ultimate weight at about the nineteenth or twentieth year and in females from the sixteenth to the eighteenth year. The decrease in the mean weight of the brain due to the supervention of senile atrophy occurs in males in the course of the eighth decade, in females in the seventh, though, of course, great individual differences are observable. In adults there is no constant relation between body weight and brain weight, still the mean weight of the brain in males of short stature is somewhat less than in those of average height, and the same holds good for women under the average height. The smaller size of the brain in women, however, is not dependent on the lower stature, for the mean weight of the brain in women is without exception smaller than that of males of equal height.

The above are the conclusions arrived at by an earnest

1. Vol. xxvii, p. 329.

and scientific student, and in the main, perhaps, are in unison with the views of those who have made a special study of this particular form of research. Objection may be made to the statement that the brains of women are more subject to deterioration from the inroads of age than the brains of men under similar conditions. Dr. Sims,[2] in an article dealing with brain weight and mental capacity, cited numerous instances in which the brains of celebrated men had been found to be of lesser weight than those of idiots and of ordinary individuals. The brain of Turgenieff, the Russian novelist, was exceptionally heavy, but was considerably exceeded in weight by that of an ignorant and unknown workman. Gambetta possessed an especially light brain, less in weight than that of the average child. Daniel Webster, Napoleon, Byron and Agassiz had brains whose weight did not surpass those of the ordinary man in the street. On the other hand, idiots and imbeciles have frequently extremely heavy brains.

Dr. Sims was of the opinion that, as a rule, larger brains appertain to natives of colder climates.

It would seem, then, that it has been proved, if not with absolute exactitude, at least with sufficient data to support the contention in a satisfactory manner, that heavy brains are no criterion of an individual's intellectual powers, and, further, that the lesser weight of women's brains does not imply mental inferiority in the female sex. It is not the weight of the brain that counts, but the quality, and whence is derived the quality is a moot point.

THE RAY OF LIFE FRAUD.

The downfall of a rank nostrum in New York City has created considerable sensation there because of the large number of persons who were easily duped by the ridiculous claims of the wily exploiters. The Force of Life Chemical Company maintained elaborate offices on Broadway for a number of years, and by alluring advertisements secured the patronage of thousands of people. They loaned "Life Ray Capsules" to patients who signed agreements to take good care of the capsules and to return them to the company. When the postoffice authorities, at the instigation of the New York County Medical Society, began to investigate the fraud they doubted the ability of the company to send out so many capsules containing radium because of the cost of this substance, and an investigation showed that the capsules contained only a cheap phosphorescent powder. The business was therefore stopped. The patients had been told by the company: "Hold a capsule near a glass of water for two minutes, drink the water and you have one of the most efficient remedies for nervousness, hysteria, melancholy, dyspepsia and general run-down conditions." Other medical advice given patients was to insulate their beds with glass castors, to use onion poultices, to tie ham rind thickly peppered and wrapped in cheese-cloth over their kidneys, etc. The concern received thousands of samples of blood from patients, and the postoffice inspector reports that these were destroyed by the colored janitor without examination or analysis, the diagnoses being made by two young women who were drawing $8.00 a week. The *New York Times,* in commenting on this swindle, says: "Indignation is wasted on the inventors and active workers of the grotesquely obvious swindle. What they did ranks, so far as intelligence and courage go, with stealing doormats or running a policy game." "The real horror of the case lies in the fact that, in this day and land, thousands of men and women can be caught and robbed with no better bait. If one did not know of the fortunes made in similar ways by the exploiters of pseudo-mysticism ranging from voodoo charms down to Eddyite theology, and by the innumerable quacks who live by selling for more dollars than they cost cents the familiar simples that form the quack's only and sufficient stock in trade, it would be possible to be astonished by the long and large success of this silly fraud. But one does know these things, and one can not be astonished at a thing that has been happening every day much longer than anybody can remember. The only possibility is to feel a deep humiliation and fierce disgust that our common schools have done so little for us that a shamefully large minority of the American people are so easily gulled as ever were naked savages, and that no assertion of ability to 'heal' can be so absurd that they will not believe it or pay for its pretended exercise." "The County Medical Society, many as have been its services by hunting down quacks, never did anything better in this line than when it dragged the names of these 'respectable' men into the light of public scorn." The public needs language of this kind straight from the shoulder, but how seldom do they get it! This fraud is gone, but hundreds of others are still in active operation and the public is still ready and anxious to take the bait.

ANESTHESIA VERSUS HOMICIDE BY NEGLECT.

There seems to be a confusion in the minds of some as to the real position of the medical profession regarding the relief of pain in incurable disease. A Catholic bishop recently wrote a letter to an eastern paper deprecating not only the proposition advocated by Professor Norton and others, but, furthermore, denouncing the production of insensibility by anesthetics in severe painful disease and, by inference at least, charging the medical profession with practically anticipating, and perhaps hastening, death by benumbing consciousness and feeling. He is not aware of the fact apparently that excessive pain is itself an exhaustive factor, and a certain degree of analgesia, artificially produced, is often a life-saving measure. Even if it does not save life it prolongs it. Moreover, in incurable disease attended with severe nervous symptoms, painful convulsions, etc., such as tetanus and hydrophobia, it is often the very best treatment, and the physician who hesitates to employ it takes the responsibility of possibly hastening death. There is no spiritual value to unendurable sufferings which themselves engross the attention to the exclusion of all other things for the time being, and such may easily be the case in many disorders. Suffering is not in itself a blessing and does not always serve any

2. Popular Science Monthly, December, 1898.

moral utility. The argument was well answered many years ago at the time of the introduction of anesthesia and it is a little surprising to see it revived now. We do not believe that the bishop himself would justify the withholding by the physician of the remedies that will inhibit the often fatal convulsions of lockjaw or rabies, even if they do benumb or abolish consciousness. Certainly not if he appreciated conditions, nor could he well justify the shortening of human life by their neglect.

A WELCOME CORRECTION.

Mrs. Maud Ballington Booth, who has been quoted with the reprehensible Hall-Norton-Crosier coterie as advocating the painless homicide of assumedly hopeless sufferers, has written to a New York paper denying that she ever expressed the opinion that the incurably sick or injured should be put out of existence. Perhaps the statement was started by some of the advocates of legalizing of homicide, who in their zeal for their cause were not too scrupulous as to the arguments or facts they adduced. The denial is eminently satisfactory, for many were pained by the allegation that anyone so prominent in good work should be so morally and mentally out of gear as to support the proposition. These morbid dreaders of pain will have to go farther and fare worse in their search for sympathizers.

Medical News

CALIFORNIA.

Long Beach Medical Society.—At its annual meeting Dr. Homer O. Bates was elected president of this society; Dr. Joseph M. Holden, secretary, and Dr. W. W. Harriman Jones, councilor.

Sanatorium Sold.—The Loma Linda Sanatorium, which was purchased several years ago by a number of physicians of Los Angeles, has not proved profitable and the hospital has been sold to the Adventists, who will continue the work.

Fire Damage.—By a fire in the Douglass Building, Los Angeles, January 11, Dr. Ralph Williams sustained a loss of $1,500, and the offices of Drs. David B. Thornton, Charles D. Lockwood and Frank S. Dillingham were seriously damaged by fire, smoke and water.

Measles Epidemic.—The large number of cases of measles and whooping cough in Alameda in December has caused the board of health to take unusual precautions to stamp out these diseases. The classrooms in the schools where measles and whooping cough are most prevalent have been thoroughly fumigated by order of the board of health.

New Health Officers.—Dr. William E. Gibbons has been elected president, and Dr. W. M. S. Bebee, vice-president, of the Stockton Board of Health, and Dr. S. Walter R. Langdon, city health officer.——Dr. Maurice W. Brown has been appointed a member of the Alameda Board of Health, vice Dr. William A. Brooke, retired.——Dr. Louis Q. Thompson has been appointed a member of the Gridley Board of Health.——Dr. J. S. A. Cabral, Centerville, has been appointed health officer of Alameda County, vice Dr. George F. Chalmers, Niles, deceased.——Dr. C. E. Stone, Marysville, has been re-elected physician of Yuba County.——Drs. Mathew D. Pratt, Fall River Mills; Adelbert B. Gilliland, Cottonwood, and John H. Soothill, Anderson, have been appointed special health officers of Shasta County.

Personal.—Baron K. Takaki, surgeon general of the Imperial Japanese Navy (retired), arrived in San Francisco from Japan, January 12.——Dr. Garrett Newkirk, Pasadena, has been appointed a member of the State Board of Dental Examiners.——Dr. F. A. Combs, Visalia, health officer of Visalia and Tulare County, was knocked down by a bicycle December 23, breaking his nose and sustaining other injuries.——Dr. William B. Stephens, San Francisco, for five years a surgeon in the Emergency Hospital, has announced that he will resign.——Dr. Frederick C. Gerlach, San José, who has been seriously ill with typhoid fever, is now convalescent.——Dr. and Mrs. Albert Abrams, San Francisco, have started for Europe.——Dr. George A. Hare, Fresno, will be a delegate for California to the International Medical Congress, Lisbon.

Lane Lectures.—The twenty-fourth annual course of Lane lectures was begun January 12 at Cooper Medical College, San Francisco. The following lectures will be delivered:

January 26: Dr. William Ophüls, "The Prevention of Epidemics."
February 9: Dr. Adolph Barkan: "The Life and Work of Hermann von Helmholtz."
February 23: Prof. F. M. MacFarland, professor of history, Leland Stanford University, "The Organs of Vision in Lower Animals."
March 9: Dr. William Fitch Cheney, "Some Mysteries of Our Mechanism."
March 23: Dr. W. E. Garrey: "A Pair of Eyes."
April 6: Dr. Thomas W. Huntington, "The Academic Hospital: Its Purpose and Ideals."
April 20: Dr. George B. Somers, "Physiognomy."
May 4: Dr. G. M. W. Lehmann, "Use and Abuse of X-Rays."
May 18: Dr. Albion W. Hewlett, "The History of Some Famous Nostrums."

ILLINOIS.

Hospital Sold.—To satisfy claims of creditors St. Joseph's Hospital, Paris, has been ordered to be sold. The claims against the institution amount to about $10,000.

Epidemic Disease.—At McLean, the prevalence of diphtheria has resulted in the prohibition of public gatherings and the enforcement of quarantine.——Scarlet fever is reported to be epidemic on the Galena road, north of Peoria.——Spring Valley schools have reopened after several weeks' closure on account of smallpox.

Personal.—Dr. J. Sheldon Clark, Freeport, has been appointed interne in the Illinois Charitable Eye and Ear Infirmary, Chicago.——Dr. Thomas H. Wagner, Joliet, has been appointed a member of the surgical staff of the Rock Island System.——Dr. Jefferson R. Hobart, Ashmore, had a second cerebral hemorrhage, January 1, and is critically ill.——Dr. Lewis D. Dunn, Moline, after a protracted illness, has recovered sufficiently to resume practice.

Objects to Dunning Incurables.—Dr. George A. Zeller, superintendent of the Illinois Asylum for the Incurable Insane, Bartonville, has registered a vigorous protest with the State Board of Charities, claiming that filthy and dangerous patients are being sent there from Cook County in large numbers. Dr. Vaclav A. Podstata, superintendent of the Cook County Institutions, acknowledges that he has sent such patients to Bartonville, but in doing so has followed the provisions of the law. He says that there is no justification for the complaint.

Examination for State Hospital Positions.—The State Civil Service Commission announces that some time in February an examination will be held for assistant physicians in the state hospitals for the insane. This examination will be open to physicians between the ages of 25 and 35, and will include surgery, medicine and nervous and mental diseases. The weights given to subjects will be: Experience, 30, and technical knowledge, 70. For further information address Joseph C. Mason, secretary and chief examiner, room 808, 218 La Salle Street, Chicago.

Chicago.

Increases in Deaths.—For the week ended January 20, 29 more deaths were reported than for the preceding week. Of these cancer showed an increase of 12, convulsions an increase of 4, and nervous diseases an increase of 13.

Mortality of the Week.—During the week ended January 20, 611 deaths were reported, equivalent to an anual death rate of 15.55 per 1,000. Chief among causes of death were: Pneumonia, 111 deaths; consumption, 69; Bright's disease, 43; heart disease, 39; violence, 37, and cancer, 36.

To Protect Children from Tuberculosis.—The Board of Education has adopted a report made by Superintendent Cooley and Dr. E. C. Dudley, providing for a medical examination of pupils supposed to be suffering with tuberculosis and giving the superintendent authority to exclude pupils found to have the disease from the schools.

Contagious Diseases.—Serious increases were noted last week in the contagious diseases. Scarlet fever had 100 cases, 8 more than in the previous week, and 79 more than in the corresponding week of 1905. Of diphtheria 117 cases were reported, 41 more than in the previous week and 68 more than for the corresponding week of last year.

Uphold Health Commissioner's Methods.—The committee appointed by the Chicago Medical Society to make a study of the methods and work of the Department of Health in the nomenclature and classification of death causes and the registration of vital statistics, to report defects discovered and to suggest practical remedies therefor, has reported, indorsing the methods and commending the work of the department.

New Hospitals.—The Chicago Lying-in Hospital and Dispensary intends to build a new hospital to cost $200,000.——Plans are being made for a nurses' dormitory for the Mary Thompson Hospital for Women and Children, to accommodate 31 nurses, and to cost about $20,000.——Plans have been prepared for the Cribside Pavilion to be built in connection with the Chicago Memorial Hospital, to cost about $40,000.

MARYLAND.

Fees in Last Illnesses.—A bill has been introduced in the legislature giving physicians the same protection in the collection of fees for professional services in the last illnesses as are now afforded undertakers.

Illegal Practice.—Dr. J. G. Sexton was arrested at Cumberland on the charge of practicing without being registered, and was fined $10 and costs. He appealed and gave bond.——The grand jury has returned an indictment against Dr. John A. Watson, Frostburg, on the charge of practicing medicine without registration.

Baltimore.

House Fumigation After Tuberculosis.—Dr. Bosley, health commissioner, announces that he will rigidly enforce the state law requiring the fumigation of houses which have been occupied by consumptives before new tenants move in.

Hospital Report.—The Hebrew Hospital reports 301 patients admitted and 7,269 treated in the dispensary. The total expenses were $32,246, leaving a small balance on hand. Legacies and memorials amounting to $4,700 were reported.

Tuberculosis Lecture.—Dr. Charles P. Emerson of the Johns Hopkins Hospital lectured to the Bohemians of the city on tuberculosis, January 19, under the auspices of the Maryland Tuberculosis Association. His remarks were translated by interpreters.

MASSACHUSETTS.

Fines of the Year.—Dr. Charles Harrington, secretary of the State Board of Health, reports that the fines paid amounted to $8,486 last year, distributed as follows: Milk and milk products, $1,308; other foods, $6,390; drugs, $780. He complains that some district judges are unwilling to impose a fine after the conviction.

Boston's Water Supply.—The report of the metropolitan water board of Boston and vicinity shows that the present reservoirs will contain 82,598,830,000 gallons, and a daily supply from all sources of 173,000,000 gallons. This includes the new Wachusett reservoir, completed December 12, with a capacity of more than 63,000,000,000 gallons. Into this the Nashua brings on the average 111,000,000 gallons daily. Plans are already outlined to go further west and get 71,000,000 gallons a day from the Ware River, and possibly a new reservoir to hold the waters of the Swift River, near Enfield. At present the average daily consumption of water in the district is about 115,000,000 gallons.

Study of Smallpox.—At the meeting of the Boston Society of Medical Science, January 16, Dr. Walter R. Brinckerhoff reported the results obtained by the work which he and Dr. E. E. Tyzzer did last year in Manila in the study of smallpox in monkeys. Confirmation of the organism discovered by Dr. Councilman was obtained, the two cycles being distinctly traced. True smallpox could not be obtained in monkeys, however, save by inoculation, when a mild form like varioloid was produced. Successive inoculations from the pustules to a fresh monkey and so on showed the two cycles still preserved, but the power of the virus gradually faded out. Vaccinia, on the other hand, with its single cycle, was as readily produced in monkeys as in man.

MICHIGAN.

New Secretary and Editor.—At the meeting of the council of the Michigan State Medical Society, held in Detroit, January 12, Dr. Andrew P. Biddle refused a re-election and Dr. Benjamin R. Schenck was chosen secretary of the society and editor of the state journal.

Immunity.—Dr. Ludvig Hektoen of Chicago, on invitation of the Wayne County Medical Society, delivered an address on "Immunity in Theory, Practice and Experiment," in Detroit, January 15. The lecture was supplemented by a stereopticon demonstration illustrating some of the author's original researches in immunity.

December Mortality.—The total number of deaths for December was 2,683, representing an annual death rate of 12.4 per 1,000 population, as compared with a rate of 12.6 for the preceding month. There were 435 deaths of infants under 1 year of age, 16 deaths of children aged 1 to 4 years inclusive, and 896 deaths of persons aged 65 years and over. Important causes of death were as follows: Tuberculosis, 210; typhoid fever, 54, a marked decrease from the preceding month, which had 93 deaths; diphtheria, 66; scarlet fever, 18; measles, 10; whooping cough, 16; pneumonia, 228, as compared with 187 for the preceding month; diarrheal diseases of infants under 2 years, 36; influenza, 23; cancer, 123, and violence, including accidents, 167. No deaths from smallpox were reported during the month.

State Board Doings.—At the meeting January 12, on suggestion of the secretary, it was decided by the board that hereafter the title of the official organ of the department should be "Public Health, Michigan." All pamphlets and bulletins issued by the department, including the teachers' sanitary bulletins, will be issued under this head, and will be bound in attractive covers and in suitable form to insure preservation. This method has been adopted by reason of the substantial saving in postage that will result, it being estimated that the postage of the department will be reduced fully one-half thereby. The board decided to co-operate with Prof. Delos Fall of Albion College, a former member of the board, in an endeavor to ascertain from the analysis of the uncontaminated spring waters of the state a definite chlorin standard for a pure water, a sum of money being set aside out of the appropriation to defray expense of carrying on this investigation. A committee of the board on public water supplies was appointed, comprising Drs. Vaughan, Sinclair and Shumway, to co-operate with a similar committee from the State Engineering Society and State Medical Society, in an endeavor to secure legislation to invest a commission with power to investigate and advise regarding public water supplies.

NEW YORK.

Erie County Society Election.—At the eighty-fifth annual meeting of the Medical Society of the County of Erie, held in Buffalo, January 9, the following officers were elected: Dr. Albert H. Briggs, president; Dr. Edward Clark, vice-president; Dr. Franklin C. Gram, secretary; Dr. DeWitt C. Greene, treasurer; censors, Drs. Henry R. Hopkins, DeLancey Rochester, Irving W. Potter, John H. Grant, and Francis E. Fronczak; committee on legislation, Drs. Arthur G. Bennett, William C. Krauss and Ernest Wende, and committee on membership, Drs. William Warren Potter, Charles A. Walls and Albert T. Lytle, all of Buffalo.

Centennials of Societies.—The centennial meeting of the Medical Society of the State of New York, to be held in Albany, January 30 and 31, and February 1, will be of unusual interest, as it is the first meeting of the united profession of the state secured in the judicial order of the Supreme Court, December 9, consolidating the two state medical bodies which have existed separately for many years. A history of the first hundred years of the society is being presented. Public addresses will be delivered by Hon. Grover Cleveland, Hon. St. Clair McKelway, the governor of the state, the mayor of Albany, and the president of the society, Dr. Joseph D. Bryant, New York City.——Montgomery County Medical Society celebrated its centennial at its meeting, January 10, at Fonda, where it was entertained by Dr. Frederic I. Jansen.——The centennial of Dutchess County Medical Society was celebrated at Poughkeepsie, January 10. The following officers were elected: Dr. John H. Cotter, Poughkeepsie, president; Dr. D. H. McKenzie, Millbrook, vice-president; Dr. Robert W. Andrews, Poughkeepsie, secretary, and Dr. David B. Ward, Poughkeepsie, treasurer. Dr. Guy C. Bayley, superintendent of Vassar Brothers' Hospital, Poughkeepsie, gave a historical address, in the course of which he read the minutes of the first meeting, held Sept. 20, 1806, and gave brief biographic sketches of past presidents. Dr. Joseph D. Bryant, president of the Medical Society of the State of New York, spoke of the causes which led to separation 24 years ago, and to the amalgamation just consummated. The anniversary banquet was attended by more than 100 guests. Dr. Henry L. Cookingham, Red Hook, presided as toastmaster.

New York City.

Ship's Hospital on Deck.—The new twin-screw steamship *Brazile*, of the Veloce Line, has a pharmacy, operating room and hospital on the upper deck.

Increase in City's Death Rate.—The death rate for the week ended January 13 was equivalent to 19.16 per 1,000, as against 18.77 a year ago. The increase is due to an unusual number of cases of pneumonia, diphtheria and measles.

Sixth Harvey Lecture.—The sixth lecture in the Harvey Society course will be given by Prof. Lewellys F. Barker of Johns Hopkins University, at the New York Academy of Medicine, Jan. 27, 1906, at 8:30 p. m. Subject, "The Neurones."

Croton Dam Completed.—After thirteen years of work and an expenditure of $8,000,000, the Croton dam has been finished, thereby supplying a new reservoir which is nineteen miles long by two and a half wide, with a capacity of 300,000,000,000 gallons.

Another Ambulance Collision.—An ambulance belonging to the Lincoln Hospital, while conveying a patient to Harlem Hospital, collided with an express wagon on the Willis Avenue bridge, January 17. The ambulance surgeon and a policeman were thrown out and badly bruised.

Tuberculosis Exhibit Opened.—Health Commissioner Darlington opened the tuberculosis exhibit, at Second Avenue and Thirty-fourth Street, January 16. Physicians on the East Side are aiding in this method of educating the people with regard to tuberculosis. The exhibit will continue until January 27.

Communicable Diseases.—There were reported to the Sanitary Bureau for the week ended January 13, 1,214 cases of measles, with 15 deaths; 397 cases of tuberculosis, with 173 deaths; 222 cases of scarlet fever, with 7 deaths; 32 cases of typhoid fever, with 6 deaths; 23 cases of cerebrospinal meningitis, with 26 deaths; 2 cases of smallpox, and 205 cases of varicella.

Health Department Boat Launched.—Mayor McClellan and the Health Department officials were present at the launching of the *Riverside*. This boat was built for the use of the Health Department at a cost of $67,000; it has four decks and eight separate wards, so isolated that patients suffering from contagious diseases may be carried to the island hospitals without danger to other patients.

Hospital News.—Plans have been filed for the making over of two four-story tenement houses, recently acquired by the French Benevolent Society, into an annex for the new hospital, at a cost of $17,000.——The number of patients treated from Oct. 1, 1904, to Oct. 1, 1905, in the New York Infirmary for Women and Children was 1,005; in the dispensary, 8,968, and in the outpatient department, 1,194.——At the annual meeting of the directors of Mount Sinai Hospital it was reported that 5,330 patients had been admitted to the hospital during 1905, as against 3,876 in the preceding year. In the dispensary 53,771 patients were treated, 154 in the outdoor department and 1,086 in the accident ward.

The City Milk Supply.—In a report issued by the Department of Agriculture on the milk supply of Philadelphia, Boston and New York, it is pointed out that the task of safeguarding the supply of this city is a particularly difficult task, as the milk comes from over 200,000 cows, distributed among 9,000 dairy farms, some of them 200 miles from the city. In addition the conditions relating to transportation must be regulated. Out of a total of 2,458 stores visited only 454 were found where the milk was properly cooled and where there was no communication with living rooms. In the Court of Special Sessions, after a long calendar of cases had been brought in by the Health Department, eight doctors were convicted and fines amounting to $205 in the aggregate were imposed. The judge stated that hereafter anyone who was convicted a second time for selling adulterated milk would be imprisoned, and that the sentence would be heavy. Commissioner Hebberd of the Department of Charities warmly indorses the newspaper crusade for pasteurized milk. He thinks that the milk used in the hospitals and city institutions should be pasteurized, and would have asked for an appropriation for this purpose had not the funds been apportioned before he came into office.

NEW JERSEY.

Society Officers Elected.—At the annual meeting of the Burlington County Medical Society, held in Burlington, January 10, the following officers were elected: President, Dr. Joseph Stokes, Moorestown; vice-president, Dr. J. Edward Blair, Burlington; secretary, Dr. George T. Tracy, Beverly; treasurer, Dr. Enoch Hollingshead, Pemberton.——The annual meeting of the Atlantic County Medical Society was held January 12. The following officers were elected for the ensuing year: President, Dr. Elisha C. Chew; vice-president, Dr. Edwin H. Harvey; secretary-treasurer, Dr. Edward Guion, and reporter, Dr. Burton Shimer; nominee for permanent delegate to the Medical Society of the State of New Jersey, Dr. Emery Marvel, and annual delegates to the Medical Society of the State of New Jersey, Drs. David Berner and George Scott, all of Atlantic City.

Condemn Non-Medical Health Officers.—At meetings of the Atlantic City Academy of Medicine and the Atlantic County Medical Society, January 12, the following resolutions were adopted:

WHEREAS, The Board of Health of Atlantic City, at its regular meeting, Jan. 11, 1906, under political pressure abolished the position of health officer, and decided to return to the old system of inspection by non-medical men, be it

Resolved, That in the abolition of this office the board of health is taking a step backward and will reduce its efficiency in protecting the health of citizens and visitors.

Resolved, That the board of health be requested to reconsider its present action and appoint some fully qualified medical health officer who will do his duty, irrespective of political or other influence.

Resolved, That the Atlantic City Academy of Medicine condemns the action of the board of health in making the board of health a political body.

Resolved, That a copy of these resolutions be mailed to the secretary of the Board of Health of Atlantic City, N. J., and to the secretary of the New Jersey State Board of Health; also to THE JOURNAL of the American Medical Association and the *Journal of the Medical Society of New Jersey*.

NORTH CAROLINA.

Personal.—Dr. James D. Heathman, Woodleaf, broke his arm December 28 while wrestling.——Dr. S. N. Glenn, Gastonia, has been elected physician of Gaston County, vice Dr. Henry F. Glenn, resigned.

Smallpox.—Hope Mills has an epidemic of smallpox. It is reported that there are 200 cases, but that none is serious. The health authorities of Raeford and Lafayette are taking rigid action to prevent a spread of the disease.

Mecklenburg County Medical Society.—At the annual meeting of this society December 5 the following officers were elected: Dr. W. W. Pharr, Newell, president; Dr. Walton O. Nisbet, Charlotte, vice-president; Dr. Parks McC. King, Charlotte, secretary and treasurer; Drs. John R. Irwin and Thomas F. Costner, Lincolnton, censors; Drs. Isaac W. Faison and Robert E. Mason, Charlotte, delegates to the state medical society, and Drs. Charles A. Meisenheimer, Charlotte, and Simrie M. Henderson, Croft, alternates.

OHIO.

Hospital in Trouble.—Suit has been begun in Marion to have a receiver appointed for the Marion City and County Hospital Company, which has liabilities estimated at $15,000.

Fire at State Hospital.—Fire which started in the carpenter shop at the State Hospital for the Insane, Columbus, January 8, caused $2,500 damage to the building and $3,000 or more to the contents. None of the patients was injured.

Fraud Order Issued.—The postoffice department has issued a fraud order against the Western Remedy Company, Cincinnati, as the result of an investigation by Inspector Swanson as to its methods in selling a preparation claiming to cure all ills.

Personal.—Dr. Zachariah T. Housman, Fostoria, has been ill for ten days with lithemia and autotoxemia.——Dr. W. A. Gowing, Toledo, is convalescent after a serious attack of tonsillitis.——Dr. Elmer W. Heltman, Toledo, is seriously ill with tuberculosis.

Academy Election.—The Academy of Medicine of Dayton elected the following officers at its annual meeting, January 12: President, Dr. Edwin M. Huston; vice-president, Dr. A. L. Light; treasurer, Dr. Harry F. Patten; secretary, Dr. A. W. Bartel; censors, Drs. Clifton L. Patterson, W. A. Ewing and William C. Marshall, and program committee, Drs. A. H. Dunham, Richard S. Gaugler and H. B. Harris.

Personal.—Dr. Benjamin L. Milliken, Cleveland, has gone to Jamaica for a month.——Dr. Charles S. Means, Columbus, has been elected president of the board of education of that city.——Dr. Louis R. Culbertson, Zanesville, sailed from New York for Europe January 7.——Dr. Duncan D. McCallum, Crestline, fell and strained his back December 31.——Dr. William D. Hamilton, Columbus, who was operated on in Chicago for appendicitis two months ago, has returned home.——Dr. George W. Burnett, Greenville, has been appointed health officer.

Councilor District Meeting.—The meeting of the Eighth Councilor District Medical Society of Ohio at Marietta, January 11, was attended by 65 physicians and the work done was of great interest. Dr. E. C. Brush delivered an eloquent ad-

dress entitled, "Are We Garnering Sheaves by Organization?" in which he gave the history of the state and national organizations and stated his belief that the future power of the American Medical Association would force the proper recognition of the medical profession by the passage of laws protecting the profession, and the acknowledgment of the rightful demand that a public health officer should be a cabinet officer. The society was entertained by the Washington County Medical Association. At the close of the program Dr. Stephen A. Cunningham, Marietta, was elected president, and Dr. Charles H. Higgins, Zanesville, secretary and treasurer.

PENNSYLVANIA.

County Society Officers.—At the regular meeting of the Philadelphia County Medical Society, January 17, the following officers were elected: President, Dr. Charles K. Mills; vice-presidents, Drs. James B. Walker, Aloysius O. J. Kelly, Levi J. Hammond, A. Bern Hirsch, Charles A. E. Codman, and James C. Chestnut; secretary, Dr. William S. Wray; assistant secretary, Dr. Ross H. Skillern; treasurer, Dr. Collier L. Bower, and censor, Dr. Frederick P. Henry. Dr. Albert M. Eaton was recommended to the Medical Society of the State of Pennsylvania for district censor.

New Rules for Burials.—Owing to the fact that cemetery sites have been selected without regard to the geologic formation, and that many are not suited for the purpose of properly protecting the health of the persons in their respective localities, the State Department of Health has decided to adopt the following rules and regulations: "Except by special permission from the Department of Health no interment of any human body shall be made in any public or private burial ground unless the distance from the top of the box containing the coffin or casket be at least five feet from the natural surface of the ground, except where solid rock or water may be encountered. Then the distance from the top of the box containing the coffin or casket shall be not less than four feet from the natural surface of the ground, and with the further exception that stillborn children and children less than 4 years of age dead of any diseases other than anthrax, cholera, diphtheria, leprosy, smallpox, scarlet fever, tetanus, typhoid fever, typhus fever or yellow fever, shall be buried at such a depth that the top of the box containing the coffin or casket be not less than three and one-half feet from the natural surface of the ground."

Philadelphia.

Personal.—Dr. Robert S. Engler is seriously ill with typhoid fever.——Dr. Raymond A. Dinan, who mysteriously disappeared from his home in this city, was found in Atlantic City, ill with typhoid fever.

Report of Hospital.—The report of the Polyclinic Hospital for 1905 shows that 1,320 patients were treated in the wards, and that 100,923 visits were paid to the various dispensaries. The treasurer's report shows a deficit for the year of $10,727.22.

W. B. Saunders Company.—The business of the late W. B. Saunders has been incorporated under the name of W. B. Saunders Company, with a capital of $400,000. The officers are: F. B. Saunders, president; W. B. Watson and R. W. Greene, vice-presidents, and E. V. Hall, secretary and treasurer. This means that the business will be conducted as before Mr. Saunders' death.

Dr. Takaki Here.—Baron Kanehiro Takaki, ex-surgeon general of the imperial Japanese navy, was a guest at the University of Pennsylvania, January 19. He was entertained by Dr. Charles Frazier, dean of the medical school. Dr. Takaki is by special permission of the emperor delivering a course of lectures at Columbia University, and in about two weeks he will begin a series of lectures at Jefferson Medical College. While in the city he was the special guest of Provost C. C. Harrison of the university, and Mr. William Parker.

Medical Club Banquet.—The annual meeting and banquet of the Philadelphia Medical Club was held in the Majestic, January 19. The following officers were elected: President, Dr. Roland G. Curtin; vice-presidents, Drs. Wharton Sinkler and Henry Beates; governor, Dr. G. G. Davis; treasurer, Dr. Lewis H. Adler, Jr.; secretary, Dr. J. Gurney Taylor, and executive committee, Drs. H. H. Whitcomb, Norristown, Pa.; Emory Marvel, Atlantic City, and Wilmer Krusen, Edward E. Montgomery and Ernest Laplace, of Philadelphia.

Bequests.—By the will of the late Moses Geisenberger of Lancaster, the Jewish Asylum, Jewish Hospital, and the Jewish Foster Home each receive $500.——The will of the late Dr. Thomas C. Potter bequeaths to the University of Pennsylvania his medical library, and also the sum of $10,000 to the university "to build or establish or endow a dormitory to be known as the John C. Potter dormitory."——By the will of the late Francis W. Lang, St. Timothy's Hospital and House of Mercy will receive $5,000 for the endowment of a bed to be known as the John Lang Memorial.

Medical Inspection of Schools.—The report of the chief of the Bureau of Health on medical inspection for the year 1905 shows that 43 children found to have diphtheria, and 59 additional children who had been in contact with diphtheria cases; 118 cases of measles and 58 children who had been in contact with cases of measles; 173 children who were suffering from chicken-pox; 87 from whooping cough; 37 from scarlet fever, and 19 children who had been in contact with scarlet fever cases were excluded from schools. The figures for diphtheria show 300 less cases last year than in 1904.

Health Report.—The total number of deaths reported for the week ended January 20 reached 633, as compared with 582 reported last week, and 519 the corresponding week of last year. The principal causes of death were: Typhoid fever, 16; measles, 28; whooping cough, 6; diphtheria, 21; consumption, 75; cancer, 31; diabetes, 6; apoplexy, 16; heart disease, 55; acute respiratory disease, 104; enteritis, 23; Bright's disease, 36; premature birth, 14; suicide, 4; accidents, 19, and marasmus, 12. There were 373 cases of contagious disease reported, with 37 deaths, as compared with 421 cases and 40 deaths for the preceding week. There were 240 new cases of typhoid fever reported, with 16 deaths, while in the preceding week thre were 267 cases reported, with 23 deaths.

Statue for Dr. Leidy.—A circular has been issued by a number of citizens asking for contributions toward a fund to erect a statue of Dr. Joseph Leidy on the plaza of the City Hall in recognition of his memorable work in the field of natural science. The circular says that as the president of the Academy of Natural Sciences, professor of human and comparative anatomy and zoology in the University of Pennsylvania, and president of the Wagner Free Institute of Science, Dr. Leidy added immeasurably to the position these institutions already held in the world of science. His reputation was international. It dignifies the city to which his fame belongs. Philadelphia, the place of his birth and death (1823-1891), and the scene of his labors for a half-century, has thus far failed to show any practical appreciation of his varied labors in the field of original research. It is proposed to erect a statue for $10,000. The physicians of this city who have signed the circular are: Drs. H. C. Chapman, S. G. Dixon, F. X. Dercum, Horace Jayne, R. H. Harte, George E. de Schweinitz, Thomas Biddle, Joseph Leidy, Jr., Joseph P. Tunis, William Osler, John H. Musser, Arthur V. Meigs, R. G. LeConte, W. C. Posey and J. H. Adams.

WEST VIRGINIA.

Cabell County Society.—The medical society of this county held its annual meeting December 14, at which the following officers were elected: President, Dr. Archibald Crary, Huntington; vice-president, Dr. Wesley D. Hicks, Central City; treasurer, Dr. Isaac R. LeSage, Huntington, and secretary, Dr. Thomas W. Moore, Huntington.

Mandamus Denied.—In the case of the Monongalia County Court, which brought suit against the West Virginia Board of Health citing it to show cause why it refused to confirm the appointment of Dr. James W. Hartigan, Morgantown, as county health officer, the Circuit Court denied a writ of mandamus, and on January 11 the Supreme Court affirmed the decision of the lower court.

Personal.—Dr. Wesley H. Sharp, Parkersburg, is convalescing after a surgical operation.——Dr. and Mrs. Gustavus A. Aschman, Wheeling, leave for the Mediterranean next month.——Dr. S. Harion Steele, Moundsville, has succeeded Dr. Albert H. Kunst as superintendent of the West Virginia Hospital for the Insane, Weston. Dr. John W. Hyer, Richwood, has been appointed assistant superintendent of the institution.——Dr. J. R. Bloss, Huntington, has been appointed assistant physician at the West Virginia Asylum, Huntington.

GENERAL.

Quarantine on Honolulu Raised.—Honolulu has not had a case of plague for sixty days and Dr. Cofer of the Public Health and Marine-Hospital Service has declared the outgoing quarantine removed.

Joint Medical Board.—It is reported from Washington that the President has appointed a joint board of officers of the medical departments of the Army and the Navy to consider improvements in the matter of first-aid dressings and the advisability of the adoption of a uniform equipment in the medical departments of the two branches.

Health Officer for Honduras.—Dr. Wyman, surgeon general of the Public Health and Marine-Hospital Service, has assigned Dr. Thomas F. Richardson to Honduras, to be health officer on pay by that country.

Medical Society of the Missouri Valley.—The eighteenth semi-annual meeting of this society will be held at St. Joseph March 22 and 23. The oration on medicine will be given by Dr. N. S. Davis, Chicago, and the oration on surgery by Dr. L. L. McArthur, Chicago. The local arrangements are in the hands of Drs. Jacob Geiger, C. R. Woodson and O. B. Campbell. The secretary of the society is Dr. Charles Wood Fassett, St. Joseph, Mo.

Sanitation in Havana.—According to cable reports the president of the Cuban republic has ordered the enforcement of sanitary ordinances. The decree defines offenses against the sanitary laws and under it the department can inflict penalties for refusal or failure to improve insanitary conditions once notification has been given. Hitherto the department has been hampered owing to lack of authority to enforce the directions of the sanitary officers.

Warning.—We are in receipt of a communication from a physician in California, stating that one giving his name as H. Fred Mace is calling on physicians soliciting subscriptions for THE JOURNAL in connection with a lay magazine, at a great reduction of rates, and is collecting subscriptions in advance. This offer is fraudulent and the money received is presumably retained by the alleged agent. We would again warn physicians to pay no money to agents on account of THE JOURNAL of the American Medical Association, unless the representative has a letter authorizing him to make collections at that time.

Third Congress of French-Speaking Physicians of America.—The two preceding annual congresses were held at Montreal and at Quebec. The third is to convene at Trois-Rivières during the last week of June, 1906. An urgent appeal is being made to all French-speaking medical men and women to co-operate in making this approaching congress a success. The subjects to be discussed will be eminently practical ones. Dr. L. P. Normand and Dr. C. DeBlois of Trois-Rivières are the president and secretary of the congress, supported by an able committee of organization. The congress in the following year will be held on this side of the border.

Gibbs Memorial Prize.—For the best essay on the "Etiology, Pathology and Treatment of the Diseases of the Kidneys" the trustees of the New York Academy of Medicine announce a prize of $2,000. Essays may be sent Oct. 1, 1907, or before, to Dr. A. Jacobi, chairman of the board of trustees, 17 West Forty-third street. The prize committee does not expect the "etiology, pathology and treatment" of the diseases of the kidneys to be discussed with equal completeness, but will be satisfied with the thorough scientific consideration of part of the problem, provided an essay offered in competition contains new facts or discoveries or points of view of sufficient merit.

Inspection Tour.—It is reported that the United States Fruit Company has placed one of its vessels at the disposal of the health authorities of New Orleans and Mobile in order that they may inspect the Central American fruit ports. The company is desirous of demonstrating its facilities for taking care of infectious diseases, the manner in which the vessels of its line loaded cargo and the position of the anchorage and wharves at the various loading ports. Another object of the purposed trip is to have a conference with the local health authorities at the Central American ports and to secure their co-operation, with a view to establishing safer and better quarantine regulations with New Orleans and Mobile.

Health Report of the Isthmus for November.—The report states that during November Colon underwent the same systematic cleaning to which it has been subjected for several months past. In Cristobal considerable pipe drainage and road building was added to the general work of sanitation. On November 11 Mount Hope cemetery was formally turned over to the health officer and now all burials are under the supervision of that official. The funeral trains are under the charge of a foreman in the employ of the health office, and he is empowered to arrest persons obtruding themselves on the occasion of a funeral. The arrest of two individuals has warned the public that the practice of using funeral trains for excursion purposes is to be stopped. The report also states that much less trouble than formerly is being encountered in the daily administration of quinin to laborers. The majority of cases of malaria have occurred among the more recently arrived laborers from Martinique.

CANADA.

Contract Practice.—The medical men of Regina, Sask., as a body have declared against entering into any contracts with friendly and benefit societies in the future.

Communicable Diseases in Vancouver.—According to Dr. Underhill, the health officer of Vancouver, B.C., there were in that city in 1905, 188 cases of mumps, 26 of diphtheria, 26 of measles, 99 of whooping cough, 7 of tuberculosis, 52 of typhoid fever, 52 of scarlet fever, and 76 of chicken-pox. The death rate for the year, taking the population at 42,000, was 10,571 the total number for the year being 444.

Montreal's Annual Health Report.—Cases of contagious diseases in Montreal during 1905 numbered 2,615, divided as follows: Diphtheria, 529; scarlet fever, 223; typhoid, 392; measles, 929; roseola, 5; varicella, 33; whooping cough, 94; tuberculosis, 405; trachoma, 4; cerebrospinal meningitis, 3; erysipelas, 2.

Personal.—Dr. E. C. Burson, of the house staff of the Toronto General Hospital, has been appointed chief of the interne staff.——Dr. Frank Irvin, Souris, Man., has been appointed assistant medical superintendent of the Brandon Provincial Hospital for the Insane.——Dr. Norquay of that institution has been transferred to the Selkirk (Man.) institution.

School Hygiene for London.—London, Ont., sent a large deputation to Toronto on January 18 to interview the government with regard to establishing a school for hygiene in that city. Premier Whitney in reply stated that his government would always be prepared to consider any reasonable proposition with regard to medical education in the province of Ontario. A detailed statement of the proposed institution will be placed before the government.

Analysis of "Patent Medicines."—As the Canadian law does not at the present time provide for the department of inland revenue, under which all chemical analyses are made, making any chemical analysis of any of the patent medicines on the Canadian market, pressure is being brought to bear on the dominion government to remedy the existing conditions. At an early date, however, it is understood that the dominion analyst will publish the results of an analysis of several of the best known patent medicines.

Hospital News.—A citizens' committee has been organized in Toronto to collect subscriptions for the Toronto General Hospital. Several influential business firms have subscribed from $500 to $1,000 each to this purpose.——The total subscriptions to the Toronto General Hospital amounted to $1,074,541, to January 20.——The Western Hospital, Montreal, treated 524 patients during 1905. In the outdoor departments the consultations numbered 6,698. A new wing will be erected to provide for an additional 100 patients. Dr. Grace Ritchie England has resigned from the position of assistant gynecologist to this hospital, a position she held for thirteen years. The resignation of Dr. A. Macphail as pathologist was also received and accepted.——During December, 1905, 57 male and 11 female patients were admitted to the Vancouver General Hospital. Six patients died in the institution during that month.——During the week ending January 13, 220 men, 111 women and 50 children were treated in the Winnipeg General Hospital.——The sixteenth annual meeting of the life governors of the Brandon (Man.) General Hospital was held January 15. This hospital now has accommodation for 120 patients.——One citizen of Victoria, B. C., has offered to head a subscription with $5,000 if the citizens will raise $25,000 for converting the present Royal Columbia Hospital of that city into an up-to-date and modern hospital.——The Ontario Government Institution for Epileptics has been completed at Woodstock. It has accommodation for 70 patients and will have for superintendent Dr. J. J. Williams of Lisle, Ont.——On January 12 325 patients, 195 males and 130 females, were in the Toronto General Hospital, the largest number ever in the hospital on a given day.——The Ontario government will shortly consider the question of removing the Toronto Provincial Hospital for the Insane to a point outside the city limits.——At the Montreal General Hospital during 1905, 3,210 patients were admitted to the wards and 44,377 consultations were held in the outdoor departments. The average daily sick in residence was 204.——The Royal Victoria Hospital, Montreal, treated 3,093 patients during 1905. Of the 182 deaths in the institution 57 took place within 48 hours of admission.——Dr. J. W. Stirling was appointed ophthalmologist to the hospital to succeed the late Dr. Frank Buller. The Home for Incurables, Toronto, had 132 patients during 1905. There were 4 deaths during December and 8 applications for admission.——The following have been appointed to the house staff of the To-

ronto General Hospital, to serve for the usual six months' term: In surgery—Dr. T. D. Archer, Campbellford, Ont.; Dr. J. H. Soady, Toronto; Dr. J. H. Kidd, Peterboro. In medicine —Dr. K. H. Van Norman, Toronto; Dr. F. W. Rolph, Markham, Ont.; Dr. F. J. Buller, Toronto.——In 1905 the Winnipeg General Hospital treated 4,366 patients in its wards and in the outdoor departments 5,735. The deaths during the year numbered 332. To show how the work at this hospital has increased during the past five years the following figures are given: In 1901 the in-patients were 2,773; 1902, 2,928; 1903, 3,354; 1904, 3,868. In the outdoor departments the increase has also been great. In 1901 the number was 1,607; 1902, 1,363; 1903, 3,483; 1904, 4,772. The total number of patients treated in the Winnipeg General Hospital during the week ending Jan. 6, 1906, was 357, of whom 222 were men, 86 women and 49 children.——The trustees of the Toronto Free Hospital for Consumptives held their first annual meeting in Toronto, January 13. Dr. Allan Adams, the physician in charge of the institution, presented his first annual report for the hospital year ending September 30. During the year 136 patients in advanced stages of the disease were treated, and over 5,000 people registered as visitors, showing that the community is taking a deep interest in the institution.—— Representatives of the various interests in the new Toronto General Hospital met at the Ontario parliament buildings on the afternoon of January 9 and decided that a new board of trustees with 25 members be established, as follows: The Ontario government, 8; the University of Toronto, 5; the city of Toronto, 5; the benefactors, 7. Any one can become a benefactor who up to the time of passing the necessary act to incorporate the institution has donated $500, and after the act has come into force, $1,000. The privilege of students visiting the wards shall be confined to the students of Toronto University.——Mayor Urquhart of Toronto, on leaving office, inaugurated a fund for the benefit of the Toronto General Hospital to which he invites 999 other citizens to contribute $100 each.

FOREIGN.

The Pope and the Miracles at Lourdes.—Dr. Boissarie of Lourdes, France, sent recently, as usual, his annual report to the Pope of the miraculous cures effected at the famous grotto of Lourdes in his charge. He received, in reply, a letter from Dr. Lapponi, the medical attendant of the Pope, stating that in future the latter wished to have arrangements made to establish the identity of the persons thus cured, with depositions of physicians and witnesses who had seen the patients before their cure, placing the Lourdes experiences on a more scientific basis than hitherto.

Medical Legislation in Victoria.—It is reported that a bill about to be presented to the government of Victoria, Australia, is to the effect that no degrees will be recognized from universities other than the United Kingdom or a British possession, unless it appears to the medical board that such institutions recognize the medical graduates of the University of Melbourne, and that Melbourne graduates are permitted to register in the country of the university. A clause is introduced prohibiting any persons but registered medical practitioners (and chemists) from dispensing medicine or rendering to any person medical or surgical aid for fee. The penalty for evading these provisions is fixed at $250.

Plague in Japan.—Passed Assistant Surgeon Moore reports from Yokohama that the strenuous measures enforced at Kobe and Osaka with a view to controlling plague have not as yet proved successful. The present outbreak is the most extensive and alarming one that has yet visited Japan, excluding Formosa. In view of the fact that Kobe ranks with Yokohama as a leading port of the empire and that Osaka is its chief industrial center and second city in point of population, the situation is grave. Chefoo, Chemulpo and Shanghai have all declared quarantine against Kobe. Dr. Kitasato, who is now spending his time between Osaka and Kobe, is of the opinion that plague was imported into Japan by a shipment of Bombay cotton, which was supplied to the cotton mill where the disease started.

Charlatans Imprisoned and Fined in Germany.—One month's imprisonment and a fine of 1,000 marks, about $250, were imposed recently on a charlatan named Overmann by the court at Haagen. He had advertised that he could cure lupus, cancer, epilepsy, goiter, etc., and fifty witnesses testified that he had cured them of these or similarly serious affections. The suit was brought by the Haagen Medical Society, and testimony was presented showing that Overmann was incapable of diagnosing most of the affections in question. The penalty imposed was higher on account of the fact that he had been previously sentenced by the courts for similar irregular practices. Kirchberg urges medical societies elsewhere to follow this example of the Haagen association. Systematic arraignment of quacks in this way, he thinks, would do much good. The court at Ulm has also sentenced a quack to seven months' imprisonment for advertising a "sure cure for tuberculosis."

Neisser's Research on Monkeys in the East Indies.—The *Deutsche med. Wochft.* is publishing Neisser's report of his months of research in the Dutch East Indies. He had the largest number of monkeys at his disposal that have ever been collected for a single purpose, a total of about 900, including 11 orang outangs, from 20 to 30 gibbons, and the rest smaller monkeys. He was particularly impressed with the morbidity of the monkeys, intestinal diseases, dysentery and helminths making constant ravages among them. He found that there is not so great a difference between the smaller monkeys and the orang outangs and gibbons in respect to infection with syphilis as has been previously assumed. The higher species are more susceptible, but the infection proceeds about the same in each kind of monkey. All his attempts to preserve syphilitic material for use at a later date proved fruitless. All virulence had vanished by the sixth or seventh hour after removal from the body. Even from the cadaver, inoculations were always negative after an interval of eighteen hours. Excision of the focus a few hours after infection was unable to arrest the generalization of syphilis, and the most varied attempts to prevent the development of the infection after inoculation never proved successful. The generalization of the infection could usually be demonstrated by the fifty-fourth to the hundred and fortieth day after the inoculation. Simultaneous mercurial treatment never succeeded in preventing the development of the primary lesion, and, in one instance, material from a mercury-treated animal proved exceptionally virulent when inoculated into others.

Coroners and Doctors in London.—A dispute has long been pending between the coroner for Westminster and South West London and the medical profession in regard to the employment of the pathologist to the London county council to make autopsies. The custom in London has always been for a local man to do this work, generally the physician who was first called in or the regular medical attendant. The coroner for Westminster ignored this custom, however, and brought into his district the London county council pathologist for the purpose of making postmortem examinations and of attending at inquests to give evidence. Naturally, this aroused the members of the medical profession who, if this method were universally followed, would be deprived of a somewhat valuable source of income, the fee for such work being £2.2 ($10.50). The British Medical Association took up the matter, and, as ratepayers, requested the auditor to disallow certain fees paid by the London county council to the coroner for Westminster, to reimburse him for payments made to the London county council pathologist. The contention of the association was that local medical men were entitled to do the work, and that some hundreds of physicians were affected by the coroner's action. The British coroners' act of 1887 provides that, in the event of the death of a person who has not been seen during life or immediately after death by a duly qualified medical practitioner, "the coroner may call in a medical man in actual practice in or near the place where the death occurred to make a postmortem examination and to give evidence at the inquest." The British Medical Association asserted, at the inquiry, that the London county council pathologist did not practice in or near the Westminster and South London district. The auditor of the Local Government Board came to the conclusion that he is bound to allow the whole of the payments in question, but added that he wished to express his sympathy with those members of the medical profession who had been affected by the coroner's general mode of procedure. The British Medical Association may appeal from this decision, in which case the matter will come before the Local Government Board.

LONDON LETTER.

The Health of the Navy.

A blue-book has just been issued on the health of the navy in 1904, which was very satisfactory. With a personnel increased by 7,470 as compared with the previous year there are decreases in the number of cases, invaliding, and deaths as compared with the average of the last seven years. Contrasted with 1903 the case and invaliding ratios show reductions. The invaliding ratio, viz., 22.7 per 1,000, shows a decrease of 7.28 as compared with the average of the last seven years.

The death rate was 4.45, a decrease of 1.01. The death rate from disease alone was 3.14. The highest invaliding and death rates were on the East India station. The total force serving afloat was 110,570. The total number of cases of disease and injury was 83,447, which is in the ratio of 754 per 1,000, a decrease of 118 per 1,000 as compared with the average of the last seven years. The total number of days of sickness on board ship and in hospital was 1,269,015, which represents an average of 11.47 days for each person, a decrease of 1.84 in comparison with the average of the last seven years. The total number of persons invalided was 2,511, which is in the relation of 22.7 per 1,000, a decrease of 7.28 in comparison with the average of the last seven years. Of the above total, 1,756 persons were finally invalided from the service, a ratio of 15.88 per 1,000 for the whole force, or 69.9 per cent. of the number invalided, a decrease of 1.16 per 1,000 when contrasted with 1903. Deaths numbered 493, a ratio of 4.45 per 1,000, which is a decrease of 1.01 per 1,000 as compared with the ratio for the last seven years. The average number of entries on the sick list for disease and injury per man was on the home station, 0.72 per 1,000.

Interesting Experiments on Schoolboys.

Interesting experiments have been carried out by the London County Council with the object of discovering the cause of variation in the physical condition of school children. Over 400 boys were weighed, measured, their teeth examined, and their personal cleanliness and clothing noted for the purpose of determining the conditions of their home life. An estimate of mental capacity was added by the teacher. Marks of from one to five were given to the boys after their clothing had been noted for evidence of the grade of poverty. In the first grade the clothing was of the scantiest possible. The boys were considerably below the average in weight, but the lack of height was not so marked. In the next grade the clothing was insufficient to retain animal heat. These boys worked out at the average. In the next grade the clothing was poor but passable; in the fourth it was good, and in the fifth very good. In the latter three grades the physical condition of the boys was above the average. Five per cent. of the boys were classified as dull and backward, 17 per cent. were below the average, 43 per cent. were of average intelligence, 24 per cent. were above the average, and 10 per cent. were brilliant. Curiously, these latter boys were slightly below the average in bodily conditions. Fifteen boys who lived in one-room tenements were slightly below the average weight, while their failure to come up to the average height was a little more marked. Those living in two and three-room tenements were of average height and weight. The boys living in four-room tenements were above the average in height and weight. One of the most potent causes of ill-nutrition was found to be the necessity of mothers leaving their homes to go to work. The majority of cases of injury to health were traced to want of cleanliness, and the provision of school baths as distinguished from swimming arrangements is declared to be increasingly necessary in many parts of London.

Pharmacology

Nostrums Advertised as Diuretics.

It is well known that the examination of the urine furnishes valuable clinical evidence in disease, and it is a case of a little knowledge being a dangerous thing so far as the layman is concerned, since he is told by those who advertise in the daily press that he may examine his own urine after it has stood twenty-four hours, "any sediment or cloudiness being proof of kidney disease."

Thus do these creatures, not content with preying on the sick, persuade the well that they are hovering on the brink of the grave, with no chance of salvation save in the remedy recommended. These are among the most brazen swindlers who insult ordinary intelligence with such palpable fraud that they escape being considered criminals only by a shallow pretense or because our laws are woefully lacking in defining what constitutes a crime. The following paragraph from a daily paper well illustrates the really criminal suggestiveness of this class of advertisement:

"THIS SIMPLE TEST WILL TELL: Put some morning urine in a glass or bottle; let it stand for twenty-four hours. If then it is milky or cloudy or contains a reddish brick-dust sediment, or if particles or germs float about in it your kidneys are diseased. This is the supreme moment when you should begin to take WARNER'S SAFE CURE to arrest all these unnatural conditions, for they are the unmistakable symptoms of kidney disease. If, after you have made this test, you have any doubt in your mind as to the development of the disease in your system, send us a sample of your urine, and our doctors will analyze it and send you a report with advice free."

ANASARCIN AND SIMILAR PREPARATIONS.

To demonstrate that the methods employed by many men in the "ethical field" are little different from those of the "patent medicine" makers we call attention to a circular sent out by the Anasarcin Chemical Co. For sublime effrontery and impudence the following is hard to match even in lay journals.

"In cases of valvular heart disease, when compensatory hypertrophy of the right ventricle is lost, and the patient is suffering all the distressing symptoms, headache, dizziness, vertigo, stupor, somnolence, dropsy with the most extreme dyspnea, that belongs to this stage of the disease and *the physician in charge has used all the known remedies for such troubles, i. e., digitalis, strophanthus, apocynum, spartein, supra-renal extract, etc., without avail*, a few doses of Anasarcin promptly relieves the dyspnea, the pulse is reduced in frequency, is more regular and full, and the dropsy begins to decline."

If the reader believes that the above is true, he must feel a feverish anxiety to learn the marvelous secret of the remedy. We are told that it consists of the active principles of *Oxydendron arboreum, Sambucus canadensis* and squill.

The first named seems to occupy the same relative position to the nostrum that the "four legs" do in the riddle about the chicken "merely put in to make it harder to understand."

The proprietors of hydragogin make a statement which we hope no physician will accept. Hydragogin is said to consist of tincture of digitalis 1.5 parts, tincture of strophanthus 2.5 parts, scillipicrin and scillitoxin, the active principles of *Scilla maritima* (how much?) and 0.5 part of oxysaponin. The latter, which is extracted from *Herniaria glabra*, is said to increase the diuretic action of the first four many times, without any unpleasant by-effects. They immediately make this admission: "Of course, patients with individual peculiarities may, after some time, complain of malaise, weakness, anorexia or aversion to the drops, and in these cases it may be well to discontinue the drug for a time." We suspect that anasarcin contains something closely akin to "oxysaponin."

The confidence of the physician in anasarcin is apt to be shaken when he reads further in the circular that "digitalis and squill are now known to contain alkaloids."

The circular of the Anasarcin Chemical Co. affirms that in all their dealings they are guided by the highest standard of medical ethics. This latter statement may be true, but, if true, it is, indeed, a sad commentary on the present status of our sense of duty and propriety on matters relating to the very fundamentals of the practice of medicine.

"Patent Medicine" Legislation in Kentucky.

Representative Johnson of Franklin County has introduced a bill into the Kentucky legislature similar to the one adopted last year in North Dakota, providing that the formula of "patent medicines" be printed on the package. As far as we have been able to learn, the newspapers are not devoting any space to urging the passage of this law, nor do we hear of any efforts on the part of physicians or of the public to back up Representative Johnson in his efforts to check the "patent medicine" fraud in Kentucky. We do have evidence, however, that the "patent medicine" men are awake and very, very active. The effective principle underlying the "red clause" idea is being utilized.

We have been favored by a certain newspaper of Kentucky with letters which it has received from "patent medicine" firms and their agents, which make interesting reading and prove conclusively that even in Kentucky the nostrum men have, or think they have, their grip on the throats of the newspapers. Among these letters is a three-page letter from the Peruna people, signed—by rubber stamp—"S. B. Hartman," from which we quote:

"The millions of users of proprietary medicines make no demand for such a law. They have it in their power to use or not use the medicine. They are at least presumed to have enough common sense to know whether an article does them good or cures them and whether it does not. And most undoubtedly if it does not cure them they can at least protect them from its use, because they know the name of the article under which it goes."

This sounds extremely plausible, and certainly should be enough to convince any editor of the bigotry of those who would not allow the public to be their own judge as to whether they should take "patent medicine" or not. Several paragraphs are devoted to the editors of the *Ladies' Home Journal* and of *Collier's Weekly*. Dr. Hartman charges Mr. Bok with making a fight on "patent medicines" out of spite because one of the "patent medicine" firms has sued the *Ladies' Home Journal*. He says of physicians:

"These are the people who are crying for formulas on proprietary medicines, but yet if they are called on themselves to explain to the patient what they are giving them they would absolutely refuse to do so.

"Is this justice? Is this equity? In this free country of ours to preach a doctrine and to refuse to comply with this doctrine?"

"Dr." Hartman does not know, evidently, that the doctor's prescription is on file, to be referred to by the courts, if necessary.

"We would be pleased to have you take this up, immediately, with the senators and representatives of your state, either in person or by writing them a letter calling their attention to the fact of the injustice and autocratic spirit of this act."

One of the letters is from a "patent medicine" advertising firm, and the writer is very pointed in his remarks regarding what will happen if the bill is allowed to become a law:

"When a similar Bill was passed in North Dakota last year, we were obliged to cancel all our Advertising Contracts in North Dakota, and as other agencies did the same thing—the Newspaper people of North Dakota are standing the loss that was brought about by some Country Doctor losing a fee on account of one of his patients buying a bottle of Castoria. These Country Doctors are so narrow between the eyes that they 'can look through a keyhole with both eyes at one time.' . . . The writer feels that he knows the physician a little bit better than the average advertising man; because, in the first place, he spent twenty years of his life in the Wholesale and Retail Drug business, and his dealings during this time were confined mostly with physicians, and he can go on record in saying that during all this time he actually never knew of a case of where a Doctor stayed up nights studying how he could improve the health of a Community at large."

Here is a paragraph, however, that is too good to let pass:

"Now, let us tell you another thing, if the Doctors in the United States did not prescribe Proprietary Medicines one-half of the Manufacturers of these remedies in this Country would go out of business inside of twelve months."

Physicians who are in the habit of prescribing nostrums should read this sentence two or three times, and, if possible, should learn it by heart. Of course, it must be remembered that the writer of the letter is talking about "patent medicines," but he dignifies them with the title, "proprietary medicines."

The Hostetter Company, proprietors of "Hostetter's Stomach Bitters," gives a hint to the newspaper addressed in these words:

"We would, therefore, kindly urge you to use your best efforts with your Representative to assist in defeating it, otherwise we will be compelled to withdraw our advertising from the various newspapers throughout the State."

The Chattanooga Medicine Company is the firm that puts out "Wine of Cardui," the advertisements of which are so indecent that no man with any self-respect would dare to read them out loud before his family. This company also writes a letter to the newspaper and covers the same old arguments. Here is one:

"Last summer a letter was published by Edward Bok, editor of the *Ladies' Home Journal*, in which he gave the physicians to understand that he had organized a bureau to promote legislation of this character and that bills for this purpose would be forthcoming in every state legislature during the coming winter. It may, therefore, be assumed that the inclosed bill is the one which the editor of the *Ladies Home Journal* deems most suitable for the people of Kentucky and which he has caused to be introduced."

Poor Mr. Bok seems to be "getting it in the neck" sadly. As it happens, however, this is not Mr. Bok's bill, if he has any, and Mr. Johnson, we are reliably informed, knows nothing about the articles in the *Ladies' Home Journal* or about the bill with which Mr. Bok is credited.

We make one more quotation from the "Wine of Cardui" people:

"Trustworthy statistics gathered during the last six months conclusively show that casualties from the use of proprietary medicines are exceedingly rare and practically never occur when the directions on the package are followed. On the other hand the number of fatalities arising from the use of strychnin, morphin, arsenic, etc., prescribed by physicians, is many times greater than the casualties resulting from the use of proprietary medicines of every description."

It may be interesting to note that this paragraph occurs almost word for word in the letter of the "Peruna" people and that the same "arguments" are given in all the letters, indicating a common source for the "information" that is supplied to the servile newspapers.

A desperate effort is being made by the press committee of the Proprietary Association, assisted by the *Western Druggist* of Chicago, the *National Druggist* of St. Louis, and some other drug journals, to overcome the verified statements of Mr. Adams regarding deaths from the use of "patent medicines," but they have not succeeded. We hope to have something definite to say on this point before many weeks. From evidence that has been coming into this office recently, Mr. Adams did not by any means exaggerate when he spoke of the number of deaths from the use of "patent medicines"; he most decidedly underestimated the number.

There are other letters of a similar tenor, but we have quoted enough to show that the tactics to muzzle the press, as illustrated in *Collier's* article on "The Patent Medicine Conspiracy Against the Freedom of the Press," and that were used in Massachusetts and in Wisconsin, are being adopted in Kentucky.

This brings up the question: Who is representing the public in this matter, and what are the physicians of Kentucky doing about it? Thus far, physicians have done nothing in furthering the propaganda aganst the "patent medicine" fraud, probably because they fear that if they did their motives would be misconstrued and their actions charged to selfishness.

The Proprietary Association is asserting that physicians are instigating this fight against secrecy and fraud in "patent medicines"—for it is the secrecy and fraud that are objected to, this must not be forgotten—therefore, since we have the credit, would it not be just as well for us to deserve this credit and go to work and do what we ought to do? We urge the physicians of Kentucky to assist in this fight against the vultures who are preying on the gullibility of the ignorant and on the fears of the sick and the suffering.

Endorsement of the Propaganda Against the Nostrum Evil.

At a meeting of the New York Academy of Medicine, held January 18, the following resolution was offered, seconded and, after some discussion, passed:

WHEREAS, The evil caused by the widespread use of preparations of drugs of unknown and deleterious constituents inflicts a very great and growing injury on a large proportion of the public, and

WHEREAS, It is impossible to overcome this evil by individual effort because the preposterous and extravagant claims made by their purveyors are convincing to the uninformed by reason of the media of their advertisement, which include periodical literature of all descriptions, not only the daily press and magazines, but also religious and otherwise reputable medical journals and many counterfeit imitations of the latter, to some of which an income practically amounting to a subsidy is plain; and

WHEREAS, Physicians frequently aid in the propagation of the evil by prescribing them, by giving testimonials in favor of them, or indirectly, by their failure to prescribe according to the needs of their individual patients, therefore be it

Resolved, That this academy urges most strenuously on its fellows and on all other physicians, never under any circumstances to sanction the use of any preparation the nature and quantity of whose ingredients are unknown to them, whether it appear in the guise of a medicine, a food, or as an application for external use; and to this end to prescribe definitely, exactly and in writing for every patient who needs any drug or combination of drugs; to diffuse among the laity as widely as possible a knowledge of the potential evil residing in preparations of drugs of unknown constituents; to second as far as possible the efforts of the American Medical Association in its attempt to combat this evil through the agency of its Council on Pharmacy and Chemistry, whose duty it is to investigate unofficial preparations and to publish the truth about them; and to use all proper influence to have advertisements of them removed from medical journals;

Resolved, That pending repressive legislation which is likely soon to take place in many state legislatures and also in Congress, the attention of the State Board of Health be respectfully directed to the admirable chemical work which has been conducted for years by the Massachusetts State Board of Health and which has resulted in the filing in the Massachusetts State House of a long list of conspicuous fraudulent preparations with a statement of the exact amount of their noxious ingredients; and that the Department of Health of this city be respectfully urged to exercise its powers to protect the public against the dangers of secret preparations of all sorts which are known to be noxious or which by chemical analysis be shown to be so, by absolutely prohibiting their sale within the limits of its jurisdiction;

Resolved, That wide publicity be given to these preambles and resolutions under the direction of the council and that attested copies of them be sent to the boards of health of this state and of this city.

At a meeting held January 11 the Montcalm County (Mich.) Medical Society adopted resolutions endorsing the work of the Council on Pharmacy and Chemistry in investigating nonofficial drugs and in educating the medical profession concerning the evils of secret nostrums. The society declared that as

physicians have the right to know the composition of all remedies used by them it is their duty to refrain from using articles for which the formulas are not given. The society also commended the work of the *Ladies' Home Journal* and *Collier's Weekly* in exposing "patent medicines."

Similar resolutions were passed by the Crawford County (Ill.) Medical Society, the Allamakee County (Iowa) Medical Association, the Santa Barbara County (Cal.) Medical Society, the Atlantic County (N. J.) Medical Society, and the New Castle County (Del.) Medical Society.

The Shelby County (Ala.) Medical Society, at a meeting held January 9, passed resolutions approving the work of THE JOURNAL and of the Council on Pharmacy and Chemistry in exposing secret remedies, and also the work of the *Ladies' Home Journal* and *Collier's Weekly*. In addition, the members of the society pledged themselves not to prescribe any preparation of which the formula and proportions of the ingredients are not well known and substantiated by well-accepted medical authorities. The society also condemned unqualifiedly all religious publications which publish advertisements of deleterious "patent" preparations, or sure cures for cancer, dropsy, tuberculosis or Bright's disease.

The Utah County (Utah) Medical Society endorsed the action of the American Medical Association and instructed the secretary to notify the Utah State Medical Association, the American Medical Association and the Utah State Pharmaceutical Association to that effect and also to advise these bodies that the society has sent a petition to Congress in support of Senator Heyburn's pure food bill.

One Illustration of the Danger of Using a Nostrum.

In the January number of the *Medical World* is an illustration of what can happen, and often does happen, when a physician prescribes a secret preparation. Some one contributes an article on the treatment of pneumonia, but the editor generously suppresses the name of the author. The latter claims to have practiced thirty years, "hoping all that time that I should some time be a doctor; but I am yet a student." For "pain or stitch in side," he gives a hypodermic of morphia, and adds:

"This gives perfect ease with deep breathing. At this stage I am not afraid of acetanilid. I generally carry a preparation made as follows:

"℞. Acetanilid ..... ℥i
"Soda bicarb.
"Bromo seltzer, āā..... ℥ss

"M. Triturate thoroughly. Dose, 5 gr. to 15 gr.

"Follow the hypodermic with a dose of the above mixture. In from 20 to 60 minutes the patient begins to complain, 'Oh, I am so hot;' A few minutes later a colliquative sweat sets in. Your patient is now comfortable."

The last remark is not to be wondered at, and it would not be strange if the patient remained "comfortable" for a long time. As the editor of the *Medical World* comments, "It is no wonder that his patients become cyanosed and suffer from drenching sweats." Here is a doctor mixing this nostrum, bromo-seltzer, a principal ingredient of which is acetanilid, with acetanilid. He is a student, he says, and we hope that he will prove to be one to the extent at least of learning not to prescribe anything unless he knows exactly what he is prescribing.

A Pertinent Question.

The *Medical World*, commenting on one of the *Collier's* articles on nostrums, concludes with this pertinent question:

"How can the editor of any medical journal read the exposé of antikamnia above mentioned and print the advertisement of antikamnia in his advertising pages? The profession should ask every medical editor if he has read the article above referred to, and then ask why he carries the antikamnia advertisement. Will *you* write to the editors of all the medical journals you take about this matter?"

But why not ask the same question regarding ammonol, salcodeia (Bell) and phenalgin? They are all in the same category. It is not only because it is indirectly advertised to the public that antikamnia should be condemned, but because it is a dangerous nostrum that has been foisted on our profession on false claims. The other acetanilid mixtures we mention should be refused recognition for the same reasons.

A Pharmaceutical Secret Which Should Not be Lost.

Dr. Gregory Costigan, New York City, writes, under date of January 21, as follows:

"I have been carefully reading and enthusiastically approving your articles on the nostrum evil, and have been impressed more than usual on the existence of quack advertising in medical journals as set forth in last paragraph and quotation on page 206, bottom of first column, of your issue of Jan. 20, 1906.

"In *Merck's Archives*, page II, we are told in an advertisement on 'Phenalgin' that it 'is a compound of peculiar character which can not be extemporaneously made from powdered drug' and 'our process of manufacturing tablets is coincident with the manufacture of Phenalgin and is the result of a long series of careful experiments by which we are able to produce tablets of Phenalgin in a friable condition without losing any of its *volatile* constituents or undergoing chemical changes from heat or moisture'!! Inasmuch as Phenalgin tablets are not covered with a waterproof coating I think this is a remarkable statement to make, and the manufacturing of a drug coincident with the manufacture of a tablet must be a very remarkable performance especially because it 'retains the full therapeutic value of the drug unimpaired' while the advertisement asserts that no other manufacturer is cognizant of this wonderful method. This ad. is for the perusal of physicians only. The Etna Chemical Company owes it to the medical and pharmaceutical world not to let this secret die with the company's dissolution. It owes it as a duty to the coming generations of science immediately to jot down the full data of this wonderful performance, to put it away in an age-proof safe and not to allow it to be lost to humanity as were a great many other arts that were well known to the ancients. Let them keep it secret now and profit by it, but do not let it be lost to posterity."

Correspondence

The Index Medicus.

WASHINGTON, D. C., Jan. 15, 1906.

To the Editor:—The complimentary dinner given in honor of the approaching 83d birthday, on March 6, 1906, of one of the founders and the principal editor of the *Index Medicus*, Dr. Robert Fletcher, has naturally directed attention to that publication.

The *Index Medicus* is a monthly publication, issued under the auspices of the Carnegie Institution of Washington, D. C. It is edited by Dr. Robert Fletcher and Dr. Fielding Garrison, of the Library of the Surgeon-General's Office. It is just what its name indicates, a medical index, or subject and author catalogue of all the current medical literature of the world of the preceding month.

It is compiled, through the courtesy of Dr. Robert M. O'Reilly, Surgeon-General, U. S. Army, and Major Walter McCaw, Assistant Surgeon-General and Librarian of the Library of the Surgeon-General's Office, from the cards prepared for the "Index Catalogue of the Library," the cards being loaned for that purpose. The "Index Catalogue" is published in progressive volumes, one volume a year, covering one or more letters of the alphabet, according to the number of titles that can be comprised in the prescribed 1,000 pages of the volume.

The *Index Medicus* was founded by Drs. J. S. Billings and Robert Fletcher in 1879, who were its editors until Dr. Billings retired from the Medical Department of the Army. From 1879 to 1884 it was published by F. Leypold, of New York. It then announced its suspension for want of sufficient support, but, with the beginning of 1885, George S. Davis, of Detroit, took up the publication and continued it until 1895. From May, 1895, until April, 1899, the publication was issued by the editors, when it suspended publication. Jan. 1, 1903, the Carnegie Institution undertook the responsibility of publication.

Although Dr. Fletcher was in his 81st year when the Carnegie Institution undertook the publication, and was reluctant again to take up the editorship, he yielded to the urgent persuasions of his many medical friends and again resumed the editorial chair, assisted by Dr. Fielding Garrison, who has been for some years associated with Dr. Fletcher in the compilation of the "Index Catalogue."

The subscription price of the *Index Medicus* was originally $5 per year, but at this price the publishers lost money. It was then raised to $10, but this was not sufficient to pay the enormous cost of printing, and $25 a year was subscribed by one or two hundred enthusiastic medical writers, but even this was not sufficient to meet the growing expense.

It may readily be asked why so valuable a publication was not self-supporting. The answer is that in the entire medical profession there are only a comparative few who are interested to any extent in medical research, but more particularly to the fact to those only who have easy access to large medical libraries or who could afford to come to Washington and use the Library of the Surgeon-General's Office would the *Index* be of much service, as it gives only the titles of books and journal articles and the source from which they are taken. But to those who are engaged in medical research, and wish to keep in touch with the very latest and best thought and progress of medicine and surgery it is considered invaluable and indispensable.

THE INDEX CATALOGUE.

The "Index Catalogue of the Library of the Surgeon-General's Office," which forms the basis of *Index Medicus*, is the most perfect and complete author and subject index ever published.

The first series of this magnificent government publication, comprising 16 large quarto volumes, from A to Z, began in 1880, and ended in 1895. In 1896 letter A of the second series was begun, and last fall vol. x, containing only part of letter M, was issued. Only one volume is published each year.

The publication contains an author and subject index to about three-fourths of all the medical and surgical literature of the world for all time, and about 90 per cent. of the literature for the past twenty years. It differs from the *Index Medicus* in that it contains everything, old or new, to be found in this great national library, while the *Index Medicus* only contains the new and current literature. A word or two will make it clear as to why the *Index Medicus* was deemed necessary.

As the "Index Catalogue" is published progressively, one or two letters of the alphabet at a time, it is manifestly obvious that it could not keep up with the current literature. For example, a physician who wishes to write a paper or examine into the literature of tuberculosis for the past ten or twelve years can get his references from the *Index Medicus*, whereas he would have to wait until about the year 1909 for the volume of the "Index Catalogue" containing that subject, or else come to Washington and consult the card catalogue. The *Index Medicus* obviates that difficulty, and it was for this reason it was begun as a private undertaking. But this would have been an impossibility had it not been, as I have stated, for the courtesy of the Surgeon-General in permitting the publishers to have access to the cards which were daily being indexed for the "Index Catalogue."

The classification of subjects in the *Index Medicus* necessarily differs very materially from that of the "Index Catalogue," which is more minute and covers a broader range, yet it is a most comprehensive classification, and to many of the users of both the former is very satisfactory and easily understood.

To Dr. Robert Fletcher, principal assistant librarian and chief editor of the *Index Medicus* during its entire existence, is due the credit of this most perfect work, but it would be difficult for any one to comprehend fully the vast amount of painstaking labor involved. Night after night and month after month during these 23 years he has burned the midnight oil in order that the medical profession should have their beloved index in all its perfectness on the day of publication. Had he not been the most methodical and systematic worker engaged in any literary work, he would long ago have broken down under the great strain. Not the slightest detail of arrangement or classification or typographical execution but what came under his rigid scrutiny. It was a peculiar task, requiring much thought and a perfect encyclopedic knowledge of medical nomenclature, a faithful attention to detail and unceasing toil and vigilance. The last revised proof sheets of the index, as they left his hands each month for the office of publication, formed, in fact, a miniature monthly edition of the great "Index Catalogue," which has been and still is the wonder of the world. It brought to its few appreciative subscribers a perfectly classified index of the original writings of all the medical men of the world on every subject in medicine and surgery for the past month, and at the end of each volume it contained an author and subject index to every book and journal title, which of itself was a marvel of painstaking labor. The author index was particularly valuable for reference, furnishing, as it did, a complete bibliography of the writings of all medical men, whether of a book or a journal article.

HARRY O. HALL,
In Charge of Reading Room,
Library Surgeon-General's Office.

Medical Student Reputations.

BUFFALO, N. Y., Jan. 13, 1906.

To the Editor:—Alluding to your editorial in THE JOURNAL, January 13, on "Medical Student Reputations," allow me to point out that the whole trouble as to student rowdyism is of comparatively recent date and practically synchronous with the development of social life analogous to that at colleges. A small boy apologized for his too demonstrative puppy that he didn't know he was a dog, he thought he was folks. Exactly the same trouble ails our too demonstrative medical, law, pharmacal, veterinary and other professional students and, ridiculous as it may seem, even callow, ignorant boys making up deficiencies of arithmetic and learning bookkeeping and stenography at business "colleges."

All these boys are impressed with the notion that they are college students. If they have to spend their time on less ornamental and more immediately practical things than Latin and Greek and calculus and geology, they can, nevertheless, parade in their nightshirts or break in the doors of the college, or sing smutty songs about the faculty at a theater party.

Now, I haven't a word to say in extenuation of similar doings by real college students and I would not like to admit that the man who is preparing for lifework in a profession, is not engaged in a highly reputable and honorable occupation. There is not even any objection to calling a quiz society by Greek letters or having a sofa pillow with college colors on it, or maintaining a football team or in other reasonable ways copying at professional schools, the social life at colleges.

But, when in the attempt to make a "college" man of himself, the professional student indulges in foolish and destructive acts, the time has come not to appeal to his sense of honor or maturity, or to his realization of the dignity of his future profession, but to get at the root of his self-deception. Snobbishly if need be, plainly in any case, set it before him that he thinks he is folks when he is just plain dog. Let him understand that a professional school is not a college and that his lawless acts will not be covered by the mantle of glamor and social prestige which, rightly or wrongly, sometimes cover similar lawless acts by the genuine article.

A. L. BENEDICT, M.D.

A Simple Method of Making a Blood Count.

BALTIMORE, Jan. 16, 1906.

To the Editor:—I have a clinical suggestion to offer your readers which I have found valuable. It is so simple that it may be a very common procedure, but if so I am not aware of the fact. In the Thomä-Zeiss blood-counting apparatus the lines on the counting scale which may be seen plainly under the microscope when there is no blood on the slide do not always show out clearly when the drop of blood has been covered with the cover slip and the slide made ready for the examination. In accurate work, when a large number of fields are counted, a great deal of time is lost, in the aggregate, in getting the proper portion of the slide under the lens, especially when the higher powers are used. For some time I have used a method which, while very simple, is not mentioned in textbooks, and is not only a time saver, but also renders the blood count more accurate, as less manipulation of the slide is

required. The examiner places the slide under the microscope and gets the counting field in place, and then takes a lead pencil and outlines the slide on the stage of the microscope. Whenever one wishes to count a field, one has merely to insert the slide in this space of outlined area and the field is always directly under the lens ready to be counted. A great saving of time and patience is effected by this simple procedure, which means a great deal at the end of a week or month to those who make many blood examinations. The directions are simple: Draw the outline of the slide on the stage of the microscope when the counting field is in view. When, therefore, one wishes to count a field the slide is placed in this outlined area and the counting field is exposed at once.

B. B. BROWNE, JR., M.D.

Marriages

EDMOND DOAK, M.D., to Miss Ethel King, both of Taylor, Texas, January 17.

HERBERT PEASE, M.D., Slater, Iowa, to Miss Lois Felshaw of Collins, Iowa, January 17.

EMMA S. POWELL, M.D., and Frank W. Hill, both of Ottumwa, Iowa, January 10.

J. C. CUTLER, M.D., Belleville, Wis., to Miss Jessie McMore of Verona, Wis., December 28.

JESSE EDWARDS HUNT, M.D., to Miss Marion Ingalls, both of Atchison, Kan., January 25.

JOSEPH H. VOGEL, M.D., to Miss Antoinette Crone, both of New Ulm, Minn., January 24.

A. M. WYLIE, M.D., Chester, S. C., to Miss Lizzie Hardeman of Louisville, Ga., January 24.

GEORGE W. KOCH, M.D., Akron, Iowa, to Miss Frances Gilbert of Geneseo, Ill., January 1.

P. MCHUGH WALKER, M.D., to Miss Mabel Garnett, both of St. Thomas, N. D., January 10.

ROBERT W. HALE, M.D., to Miss Cora Bowman, both of Thermopolis, Wyo., December 23.

LOUIS WEISS, M.D., Newark, N. J., to Miss Henrietta Epstein of New York City, January 11.

CHARLES A. UNDERWOOD, M.D., Warsaw, Ind., to Miss Clara Moore of Covington, Ind., January 24.

HARRY E. DOWNS, M.D., Batson, Texas, to Mrs. Sarah E. Potter of Beaumont, Texas, January 11.

ANDREW D. HOIDALE, M.D., Tracy, Minn., to Miss Pauline Madeira of New Ulm, Minn., January 9.

DAVID CUMMINS MORTON, M.D. to Miss Mary Harris Ballard, both of Louisville, Ky., January 25.

R. T. VAN METRE, M.D., Dewar, Iowa, to Miss Marie G. Murdock of Kewanee, Ill., at Iowa City, January 17.

FRANK R. MILLER, M.D., Everett, Wash., to Miss Daisy Wright of Canton, Ill., at Galesburg, Ill., January 10.

JOHN A. COPELAND, M.D., Coleridge, Neb., to Miss Laura McKay of Sioux City, Iowa, at West Side, Iowa, January 10.

Deaths

Emerson Warner, M.D. Harvard University Medical School, Boston, 1863; for twenty-five years consulting surgeon at Worcester City Hospital; since 1871 consulting surgeon to the Memorial Hospital; for 17 years a member of the attending staff of the City Hospital; for many years president of the Worcester District Medical Society, and councilor of the Massachusetts Medical Society; a member of the legislature in 1884 and 1885; and for twenty years a member of the local school board, died at his home in Worcester, December 30, from endocarditis, after an invalidism of twenty years., aged 74.

Swan Moses Burnett, M.D. Bellevue Hospital Medical College, New York City, 1870; Ph. D. Georgetown University, 1890; a member of the American Medical Association, Washington Academy of Sciences, and American Ophthalmological Association; professor of ophthalmology and otology, University of Georgetown; professor of ophthalmology, Washington Postgraduate Dispensary and Emergency Hospital; ophthalmic surgeon to Providence and Children's hospitals, Washington; a prolific writer on ophthalmologic subjects, died suddenly at his home in Washington, D. C., January 18, from heart disease, aged 58.

Hiram S. McConnel, M.D. Bellevue Hospital Medical College, New York City, 1875; a member of the American Medical Association, Medical Society of the State of Pennsylvania, Western Pennsylvania Medical Association, and Beaver County Medical Society; for three terms a member and secretary of the State Board of Medical Examiners; for twenty years a member and most of that time president of the New Brighton board of education; a very prominent practitioner of the Beaver Valley, died at his home in New Brighton, Pa., January 15, from pneumonia, after an illness of four days, aged 57.

George Chismore, M.D. Medical College of the Pacific, San Francisco, 1873; a member of the American Medical Association; medical officer of the American division of the Western Union Russian-American extension from 1865 to 1867; acting assistant surgeon, United States Army, on frontier duty from 1867 to 1872; one of the foremost surgeons of the Pacific Coast, died at his home in San Francisco, January 12, from pneumonia, after an illness of five days, aged 65.

James D. Wright, M.D. Medical College of Ohio, Cincinnati, 1855; once a member of the Iowa legislature; one of the organizers of the State Board of Agriculture and a trustee of the State Agricultural College at Ames; surgeon of the Forty-seventh Iowa Volunteer Infantry in the Civil War, died suddenly at the home of his son in Chariton, Iowa, December 26, from cerebral hemorrhage, aged 85.

John F. Miller, M.D. Jefferson Medical College, Philadelphia, 1858; superintendent of the State Hospital at Goldsboro, N. C., for the colored insane; surgeon of the Twenty-fourth North Carolina Infantry, C. S. A., in the Civil War, died suddenly at his residence in Goldsboro, January 9, from heart disease, aged 71.

Stansmore Vivian, M.D. Bellevue Hospital Medical College, New York City, 1885; attending physician at the Iowa County (Wis.) poorhouse; chairman of the school board of Mineral Point, died at his home in that city from cerebral hemorrhage, January 4, after an illness of a few hours, aged 46.

Harry A. McGronen, M.D. Illinois Medical College, Chicago, 1898, of Brooklyn, N. Y., assistant dermatologist in the Brooklyn Central Dispensary, was instantly killed January 12, by being crushed by a freight elevator in a department store in New York City, aged 35.

John Warner, M.D., a practitioner of Illinois from 1841 to 1852, and afterward a prominent banker and philanthropist of Clinton, Ill., who gave to that city the Warner Hospital, died at his home, December 21, from pneumonia, after an illness of one day, aged 86.

B. Franklin Watkins, M.D. Department of Medicine of the University of Pennsylvania, Philadelphia, 1852; surgeon in the Confederate service during the Civil War; for many years a practitioner of Bryan, Texas, died at his home in that city, December 25, aged 73.

Charles Nelson Miller, M.D. Bellevue Hospital Medical College, New York City, 1883; an active member of the Morris District Medical Society and of the Tri-county Medical Society, died at his home in German Valley, N. J., from nephritis, January 14, aged 43.

Simeon T. Yancey, M.D. Medical College of Indiana, Indianapolis, 1874; state senator from Hancock County, Ind., from 1880 to 1882; state oil inspector in 1884; a veteran of the Civil War, died suddenly at his home in Fortville, Ind., January 4, aged 70.

S. D. Dodge, M.D. Jefferson Medical College, Philadelphia, 1866, at one time physician to the Arkansas School for the Blind, Little Rock, died at the home of his sister in that city, January 9, from bronchopneumonia, after an illness of eight days, aged 65.

William M. Hill, M.D., for more than forty years a practitioner of Hopkinsville, Ky., twice chairman of the board of council, and for several years a councilman, died at his home in Hopkinsville, from senile debility, January 15, aged 78.

Thomas Austin Harris, M.D. Louisville Medical College, 1884; formerly of Rosedale, Miss.; a member of the American Medical Association, and state, tri-state and county societies, died recently from dropsy in Tishomingo, I. T., aged 48.

Clark R. Warren, M.D. Rush Medical College, Chicago, 1876, a veteran of the Civil War, and for many years a practitioner of Otis, Ind., died at his home in Chicago, January 2, from brain tumor, after an illness of eight weeks, aged 65.

Richard Armstrong Heath, M.D. University of Edinburgh, Scotland, 1891, of New York City, died at St. Luke's Hospital, New York City, from pneumonia, January 17, four days after a fall from a street car in which his shoulder was injured, aged 42.

Charles L. Webster, M.D. College of Physicians and Surgeons of Chicago, 1894, a member of the Cleveland Academy of Medicine, died at his home in Cleveland, December 22, from cancer, after an illness of six months, aged 43.

William I. Wallace, M.D. University of Michigan Homeopathic Medical College, Ann Arbor, 1884, died from consumption at his home in Hemet, Cal., December 14, after a prolonged illness, aged 42.

Wellington B. Briggs, M.D. University of Nashville (Tenn.) Medical Department, 1862, secretary of the Brazos Valley Medical Association, was found dead in his home in Easterly, Texas, January 14.

J. Lee Beck, M.D. Boston University School of Medicine, 1879, of Vineland, N. J., was struck by a train and instantly killed, January 18, while driving over a grade crossing near Norma, N. J.

Isaac Cooper, M.D. Hahnemann Medical College, Philadelphia, 1868, died at his home in Trenton, N. J., January 17, from cerebral hemorrhage, after an illness of three days, aged 61.

George W. Watkins, M.D. (33 Years' Practice), Kentucky, 1893, a practitioner of Spottsville, Ky., for 45 years, died from senile debility at his home in that place, December 21, aged 78.

Benjamin Liles Askew, M.D. (Twenty-five Years' Practice, Ohio, 1890), a veteran of the Civil War, died suddenly at his home in Jefferson, Ohio, from heart disease, January 7, aged 71.

Joseph T. Clymer, M.D. Eclectic Medical Institute, Cincinnati, 1886, died at his home in Monticello, Ind., January 10, from acute gastritis, after an illness of a few hours, aged 53.

Henry S. Foster, M.D. Jefferson Medical College, Philadelphia, 1892, of McKeesport, Pa., died in the hospital in that city, January 13, from the effects of an overdose of morphin.

Augustus S. Wright, M.D. Hahnemann Medical College, Philadelphia, 1850, died at his home in Santa Rosa, Cal., December 22, from pneumonia, after an illness of three days, aged 80.

Joseph D. Hoare, M.D. New York University, New York City, 1887, of Brooklyn, N. Y., died at the Steuben Sanitarium, Hornellsville, N. Y., January 9, after a long illness, aged 40.

Philip F. Lightfoot, M.D. Years of Practice, Illinois, 1887, a veteran of the Civil War, died at his home in Murrayville, January 14, shortly after a fracture of the hip, aged 82.

William Bonnell Hall, M.D. Department of Medicine of the University of Pennsylvania, 1855, a Confederate veteran, died at his home in Lowndesboro, Ala., January 14, aged 71.

Henry W. Whitfield, M.D. University of Nashville (Tenn.) Medical Department, 1858, died at his home near Bakerville, Tenn., January 6, after a short illness, aged 74.

James F. Logan, M.D., a practitioner for about fifty years, died at his home in Clarksville, Iowa, January 6, from influenza, after an illness of two weeks, aged 78.

William M. White, M.D. Albany (N. Y.) Medical College, 1886, died at his home in Amsterdam, N. Y., from pneumonia, December 29, after a short illness, aged 49.

Willard T. Greenfield, M.D. Miami Medical College, Cincinnati, 1882, of McKean, Pa., died at his father's house in Erie, Pa., January 5, from heart disease, aged 46.

Melite E. Chartier, M.D. University of Paris, France, died at Biloxi, Miss., where he had practiced for many years, January 7, from alcoholism, aged about 50.

Jacob A. Heller, M.D. Jefferson Medical College, Philadelphia, 1881, died suddenly at his home in Factoryville, Pa., January 12, from heart disease, aged 55.

Philip S. Orndorff, M.D. (Years of Practice, W. Va.), a Confederate veteran, died at his home in Rio, W. Va., January 16, from paralysis, aged 72.

William E. Hodges, M.D. University of Maryland School of Medicine, Baltimore, 1856, died at his home in Ellicott City, Md., January 16, aged 75.

William C. Poe, M.D. University of Maryland School of Medicine, Baltimore, 1865, died at his home in Baltimore, January 20, aged 62.

William Armstrong, M.D., member of the College of Physicians and Surgeons of Ontario, 1869, died at Toronto, January 11, aged 79.

James Christopher Deaton, M.D. Medical College of Virginia, Richmond, 1868, died at his home in Richmond, Va., January 12.

James H. DeWolf, M.D. Jefferson Medical College, Philadelphia, 1878, died at his home in Baltimore, January 17, aged 51.

William H. Bright, M.D. Rush Medical College, Chicago, 1865, died at his home in Martinsburg, Ind., January 13, aged 74.

Deaths Abroad.

C. L. van der Burg, M.D., of Utrecht, Holland, died recently, aged 66. He practiced in the Dutch East Indies for more than twenty years, and his works on the medical-geographic pathology of the East Indies and tropical diseases in general are accepted as standard authorities on the subject. He had been the editor of *Janus* since the death of its founder, Peypers, about a year ago.

Karoline Knur, M.D., Frankfurt on the Main, assistant physician to the public insane asylum, one of the first medical women to qualify in Germany and the first to devote herself to psychiatry, died recently, aged 39.

K. Hodlmoser, M.D., one of the collaborators on the *Wien. klin. Rundschau,* and author of a number of articles on internal medicine, died at his post in Sarajevo, Austria, early in January.

H. Rabl-Ruckhard, M.D., professor of anatomy at Berlin and author of a number of works on comparative anatomy and simulation of ocular disturbances, died at Berlin, December 20, aged 67.

H. Schmaus, M.D., professor of pathologic anatomy at Munich, and author of text-books on his specialty, died at Munich, December 12, aged 43.

E. Kusy von Dubrav, M.D., chief of the sanitary service in Austria, died at Vienna, Dec. 19, 1905, aged 61.

P. Jacobs, M.D., the senior of the physicians of Germany, died at Cologne, January 2, aged 96.

A. Sachsalber, M.D., professor of ophthalmology at Graz, died December 22, aged 41.

F. Hosch, M.D., professor of ophthalmology at Basle, died recently, aged 58.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Queries for this column must be accompanied by the writer's name and address, but the request of the writer not to publish name or address will be faithfully observed.

MEDICAL DICTIONARY—RECIPROCITY WITH OHIO AND WEST VIRGINIA.

——— W. VA., Jan. 17, 1906.

To the Editor:—(1) What is probably the best and most nearly "up-to-date" medical dictionary for the use of the general practioner? (2) What states have reciprocity agreements with Ohio and West Virginia boards? J. H. B.

ANSWER.—Gould's (Blakiston Co., $10 net); or Dorland's (Saunders & Co., $5). (2) With Ohio: Indiana, Illinois, Maine, Michigan, Nebraska and Wisconsin. With West Virginia: None.

State Boards of Registration

COMING EXAMINATIONS.

NEW YORK State Boards of Medical Examiners, Albany, January 30-February 2. Secretary, Charles F. Wheelock, Albany.

NEBRASKA State Board of Health, State House, Lincoln, February, 7-8. Secretary, George H. Brash, Beatrice.

California December Report.—Dr. Charles L. Tisdale, secretary of the Board of Medical Examiners of the State of California, reports the written examination held at San Francisco, Dec. 20-22, 1905. The number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 80, of whom 37 passed and 43 failed. The following colleges were represented:

College.	PASSED.	Year Grad.	Per Cent.
Cooper Med. Coll.		(1905)	75, 75.5, 78, 82.4
McGill Med. Coll.		(1888)	85.6
College of P. and S., San Francisco	(1904) 76.1;	(1905)	75, 75.3, 78.6.

University of California.....(1905) 76, 79.2, 84, 87, 90.1
University of Pennsylvania.....(1895) 88
Bellevue Hosp. Med. Coll. .....(1895), 76; (1904) 77.1
Omaha Med. Coll. .....(1901) 76.3
College of P. and S., Los Angeles.....(1905) 75.2, 79.4
Univ. of Southern California.....(1904) 75.1
California Med. Coll. .....(1904) 76, 79.1
Queen's University, Ont. .....(1903) 79.
Cleveland Med. Coll. .....(1895) 76.1
Columbia University.....(1900) 78.2; (1903) 77.7
Northwestern University.....(1905) 75.
Washington University.....(1903) 75.1
Med. Surg. School of Lisbon.....(1896) 78.
University of the City of New York.....(1891) 77.5
College of P. and S., Chicago, (1901) 75.2; (1904) 89.5; (1905) 79.6
Hahnemann Med. Coll., San Francisco.....(1905) 79.3
University of Virginia .....(1892) 76.5
University of Toronto.....(1905) 79.8

FAILED.

Hahnemann Med. Coll., Chicago.....(1903) 64.5; (1905) 64.2
Dearborn Med. Coll., Chicago.....(1904) 72.8
Jefferson Med. Coll. .....(1888) 53.7
California Med. Coll.....(1903) 69.6; (1905 59, 72.7
University of Iowa.....(1890) 51.7
Chicago Homeo. Med. Coll. .(1879) 68.6; (1886) 61.3, (1903) 65.1
Univ. of Southern California.....(1904) 70.5; (1905) 69.5
Howard University.....(1887) 68.5
College of P. and S., San Francisco, (1902) 70.2; (1904) 54.3, (1905) 64.2, 70.8.
University of Pennsylvania.....(1892) 71.2; (1899) 59.2
University Med. Coll. .....(1897) 60.4
American College of Med. and Surg. .....(1905) 67.3
Cooper Med. Coll. .....(1903) 57; (1904) 69.4
University of Michigan.....(1872) 52.7
Pulte Med. Coll. .....(1900) 52.
Hospital Coll. of Med. .....(1891) *16.1
Creighton Med. Coll. .....(1903) 61.5
Woman's Hosp. Med. Coll.....(1881) 63.6
Ensworth Med. Coll. .....(1898) 63.2
Northwestern University.....(1905) 70.3
College of P. and S, Chicago.....(1888) 70.7
Keokuk Med. Coll. .....(1901) 63.8
Missouri Med. Coll. .....(1896) *24.7
University of Vermont.....(1905) 70.
University of New York.....(1884) 68.2
Chicago Med. Coll. .....(1900) 70.4
University of Virginia.....(1891) 67.7
American Med. Miss. Coll. .....(1900) 64.5
Bellevue Hosp. Med. Coll. .....(1887) 68.1
University of Jena, Germany.....(1868) 66.5
Georgetown Med. Coll. .....(1905) †13.5
Columbia University .....(1907) 67.6

* Took only 4 subjects, dropped out.
† Took only 2 subjects, dropped out.

Delaware June Report.—Dr. P. W. Tomlinson, secretary of the State Board of Medical Examiners of Delaware, representing the President and Fellows of the Medical Society of Delaware, reports the written examination held at Dover, Dec. 12-14, 1905. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The number of applicants examined was 5, of whom 2 passed and 3 failed. Among those who failed was one individual whose papers were thrown out because he failed properly to sign the declaration; had his papers been considered his average would have been 78. The following colleges were represented:

PASSED		
College.	Year. Grad.	Per Cent.
University of the South .....(1905)		78.7
Georgetown University .....(1905)		89
FAILED.		
Baltimore University.....(1902) 67.9; (1903)		66

Florida Examination Questions.—At the examination held by the State Board of Medical Examiners, at Jacksonville, October 10-11, 1905, the following questions were asked:

ANATOMY.

1. What bones form the roof of the mouth? 2. Give the number of the bones and name the regions of the spine. 3. What muscles form the calf of the leg? 4. Mention the cavities and valves of the heart. 5. What arteries unite to form the basilar artery? 6. Give the average length of the alimentary tract and state its chief divisions. 7. What is the prostate gland and where is it situated? What are Peyer's glands and where are they found? 8. Mention the coverings of the brain. Describe one of these coverings. 9. Mention the lobes of the liver and describe one of them. 10. What veins convey arterial blood?

PHYSIOLOGY.

1. How many heart sounds are there, and to what are they due? 2. Describe the changes the blood undergoes in passing through the lungs. 3. Give the composition of human milk. 4. Define digestion and enumerate its stages. 5. Define secretion and excretion. 6. What is the function of the retina? 7. Describe the fetal circulation. 8. Give the physiology of menstruation. 9. Give specific gravity of urine. 10. What do you know of the functions of the spleen?

SURGERY.

1. What is pus? Of what is it produced and by what symptoms can you determine its presence in tissues? 2. What is a wound? Give general classification of wounds. 3. Describe conditions of injury to a member or limb that would justify if not demand amputation. 4. When serious wounds are sustained, what symptoms should first engage the attention of the surgeon? How would you combat those symptoms? 5. In ligation of superficial femoral artery you would avoid injuring what important vessel? What would be the results of such injury? 6. What would you do for complicated fracture involving the elbow joint? 7. Name briefly the common but important preparations for a modern operation: Preparation of the patient (3); of part to be operated on (3); of operator and assistants (2) and of instruments and appliances (2). 8. Name different methods of amputation. Which method would you adopt in amputation of thumb at carpo-metacarpal articulation? 9. With following history of injury, what symptoms would you expect and how would you treat such a patient: A severe blow with stick or piece of timber in region of left parietal bone followed by considerable induration of scalp and a marked indentation of cranium? 10. What important tissues and organs would be wounded and how treat the following wound made by a 38-caliber pistol ball: Called within ten minutes, find patient bleeding considerably, weak and faint, the wound of entrance 1 inch below and 1 inch to right of right nipple; wound of exit just below 11th rib and near point of 12th rib posteriorly on same side?

GYNECOLOGY.

1. Describe briefly the Fallopian tubes. 2. What is meant by ectopic gestation? 3. At what age does the menstrual function become established? When does it cease and what is this cessation called? 4. Give treatment for retroversion of the uterus. 5. What is the average depth of the normal uterus? 6. Give symptoms and treatment of pelvic peritonitis. 7. What purpose do the round ligaments serve and how may they be made to correct uterine displacements? 8. What is the endometrium? 9. Name a frequent cause of leucorrhea. 10. What instruments are needed in curetting the uterus and how would you sterilize them?

THERAPEUTICS.

1. Write a prescription for insomnia due to low blood pressure, and give outline of treatment. 2. (*a*) What is alcohol? (*b*) Give your idea of its value as a hypnotic. 3. Mention the various forms of malaria and outline of treatment. 4. What are alteratives and what are the ones most frequently used? 5. Apomorphia. Name officinal preparation; method obtaining it and for what it is given. 6. What are antiperiodics and the ones most generally used. 7. Mention the ingredients of volatile liniment. What is its officinal name? 8. From what source is cocain obtained? How and for what purpose is it principally used? 9. State some of the circumstances necessitating modification of standard dosage and give Young's rule for arriving at the proper dosage for children. 10. Mention some of the changes in the new Pharmacopeia affecting the strength of certain tinctures and give the strength of all potent tinctures.

OBSTETRICS.

1. What are the abnormalities of menstruation? Give their etiology and treatment. 2. What are the functions of the placenta? 3. Give the obstetric landmarks of the superior and inferior straits. 4. What changes occur in the breast during pregnancy? 5. What are the subjective signs of pregnancy? 6. Differentiate uterine bruit and umbilical souffle. 7. How may the knee be distinguished from the elbow when presenting? 8. Describe the symptoms and give the management of an incomplete abortion. 9. Into what stages is labor divided and when do these stages begin and end? 10. Describe the mechanism of labor in L. O. A. presentation.

CHEMISTRY.

1. Describe the method of generating hydrogen and mention its properties. 2. Give the physical and chemical properties of hydrochloric acid. 3. Describe atmospheric air and give its composition. 4. Name chemical antidote for arsenical poisoning, how prepared and administered. 5. Mention antidotes in mercury poisoning; also antidotes in poisoning with mineral acids. 6. Describe the properties and manufacture of iodoform. 7. Describe the symptoms of poisoning by atropin. 8. Define (*a*) chemical mixture, (*b*) element, (*c*) molecule, (*d*) chemical formula. 9. What metal is liquid at ordinary temperatures? 10. Explain the terms: (*a*) amorphous, (*b*) alkali, (*c*) water of crystallization, (*d*) amalgam, (*e*) nascent state.

The Public Service

Army Changes.

Memorandum of changes of stations and duties of medical officers, U. S. Army, week ending January 20:

Havard, Valery, asst. surgeon-general, Lynch, Charles, asst.-surgeon, Darnall, Carl R., asst.-surg., appointed members of a board of medical officers of the Army and of the Navy, to consider improvements in the first-aid dressings and uniformity of equipment for the medical departments of the two services. The board will meet in Washington, D. C., at such time as shall be designated by the Surgeon-General of the Army.

Clark, John A., asst.-surgeon, leave of absence extended thirty days.

Bourke, James, asst.-surgeon, relieved from further duty at Fort Sheridan, Ill., and from temporary duty at Medical Supply Depot, New York City, and assigned to duty as transport surgeon on the *Kilpatrick*.

Kirkpatrick, Thomas J., asst.-surgeon, having arrived at San Francisco, Cal., will proceed to Fort Moultrie, S. C., and report for duty.

Barney, Chas. N., asst.-surgeon, assigned to duty at General Hospital, Fort Bayard, N. M.

Scott, George H., asst.-surgeon, relieved from duty in the Army Transport Service, and ordered to Fort Duchesne, Utah, for duty.

Moncrelf, Wm. H., asst.-surgeon, having arrived at San Francisco, Cal., will proceed to Fort McPherson, Ga., and report for duty.

Pinquard, Joseph, contract surgeon, returned to Fort Leavenworth, Kan., from leave of absence.

Parkman, Wallace E., contract surgeon, granted an extension of one month to his leave of absence.

Landerdale, Clarence E., dental surgeon, returned to Fort Sam Houston, Texas, from leave of absence; ordered to Fort Logan H. Roots, Ark., till February 10; Fort Reno, Okla., to March 15; Fort Sill, Okla., to May 1.

White, J. Samuel, contract surgeon, relieved from further duty at Fort Snelling, Minn., and ordered to Governor's Island, N. Y., to accompany First Infantry to Philippine service.

Ferguson, James B., contract surgeon, granted leave of absence for two months.

Woods, Oscar W., contract surgeon, relieved from duty at General Hospital, Fort Bayard, N. M., and ordered home, Roanoke, Va., for annulment of contract.

Carson, Samuel K., contract surgeon, ordered from his home, Riverton, Va., to Governor's Island, N. Y., to accompany the First Infantry thence to Philippine service.

Macy, Fred S., contract surgeon, ordered to duty at Fort Adams, R. I., when relieved from duty with First Infantry.

Eber, Albert H., contract surgeon, ordered from his home Saint Clair, Mich., to Fort D. A. Russell, Wyo., to accompany the Sixth Battalion, Field Artillery thence to Philippine service.

Millikin, John D., dental surgeon, ordered from San Francisco, Cal., to Fort Leavenworth, Kans., for duty.

Hallwood, James B., contract surgeon, arrived at Washington, D. C., and granted leave of absence for two months.

Navy Changes.

Changes in the Medical Corps, U. S. Navy, for the week ending January 20:

Page, John E., P. A. surgeon, ordered to the *Franklin*, Norfolk, Va. (Orders issued by Commander-in-Chief of Asiatic Fleet.)

Bever, H. G., medical inspector, detached from the *Wisconsin* and ordered to the *Ohio*.

Barber, G. H., surgeon, detached from the *Ohio* and ordered to the *Wisconsin*.

Thompson, J. C., surgeon, detached from the *Lawton* and ordered to the *Cincinnati*.

Bucher, W. H., surgeon, detached from the *Cincinnati* and ordered to the *Lawton*.

Public Health and Marine-Hospital Service.

List of changes of station and duties of commissioned and non-commissioned officers of the Public Health and Marine-Hospital Service for the seven days ending January 17:

Williams, L. L., surgeon, directed to proceed to Wilmington, N. C., for the purpose of making an inspection of the station.

Stimpson, W. G., P. A. surgeon, granted leave of absence for one month from January 15, 1906.

Cofer, L. E., P. A. surgeon, granted leave of absence for twenty days from January 19.

Clark, Taliaferro, P. A. surgeon, directed to proceed from Philadelphia to Easton, Pa., for special temporary duty on completion of which to rejoin his station.

Richardson, T. F., P. A. surgeon, granted leave of absence for seven days from January 13.

King, W. W., P. A. surgeon, relieved from duty at San Juan, P. R., as chief quarantine officer, and directed to proceed to Washington, reporting at the Bureau for orders.

Holt, J. M., P. A. surgeon, granted leave of absence for two months from January 15, on account of sickness.

Burkhalter, J. T., P. A. surgeon, granted leave of absence for one month from January 24.

Gibson, L. P., acting asst.-surgeon, granted six days' leave of absence from January 16.

Stearns, W. L., pharmacist, granted seven days' leave of absence from January 13, 1906, under the provisions of Paragraph 210 of the Regulations.

Health Reports.

The following cases of smallpox, yellow fever, cholera and plague have been reported to the Surgeon-General, Public Health and Marine-Hospital Service, during the week ended January 19:

SMALLPOX—UNITED STATES.

California: Imperial and vicinity, Jan. 5, 7 cases; San Francisco, Dec. 23-30, 4 cases.
Delaware: Wilmington, Jan. 6-13, 2 cases.
District of Columbia: Washington, Jan. 6-13, 4 cases.
Florida: Jacksonville, Jan. 6-13, 3 cases; Mascott, 1 case; West Palm Beach, 1 case; Oveido, 1 case; St. Petersburg, 7 cases.
Illinois: Chicago, Jan. 6-13, 1 case.
Indiana: Lafayette, Jan. 1-8, 1 case.
Louisiana: New Orleans, Jan. 6-13, 6 cases.
Maryland: Baltimore, Jan. 6-13, 5 cases.
Missouri: St. Louis, Jan. 6-13, 2 cases.
New York: Buffalo, Jan. 6-13, 1 case; New York, 2 cases.
Ohio: Cincinnati, Jan. 5-12, 2 cases; Dayton, Jan. 6-13, 1 case.
South Carolina: Camden, Jan. 6-13, 1 case.
Washington: Spokane, Dec. 1-31, 2 cases.
Wisconsin: Appleton, Jan. 6-13, 4 cases; La Crosse, 1 case.

SMALLPOX—FOREIGN.

Brazil: Pernambuco, Nov. 15-Dec. 15, 80 deaths; Rio de Janeiro, Dec. 3-10, 1 death.
Chile: Iquique, Dec. 2-9, 20 cases, 6 deaths.
France: Paris, Dec. 23-30, 13 cases.
Gibraltar: Dec. 18-24, 8 cases, 1 death.
Great Britain: Cardiff, Dec. 23-30, 1 case.
India: Bombay, Dec. 12-19, 2 deaths; Karachi, Dec. 10-17, 4 cases; Madras, Dec. 9-15, 5 deaths.
Italy: General, Dec. 21-28, 26 cases; Palermo, Dec. 16-23, 2 cases.
Russia: Odessa, Dec. 9-16, 9 cases, 1 death; St. Petersburg, Dec. 3-9, 6 cases.

YELLOW FEVER—FOREIGN.

Brazil: Rio de Janeiro, Dec. 3-10, 7 cases, 1 death.
Cuba: Habana, Dec. 30-Jan. 16, 2 cases, 2 deaths.
Mexico: Vera Cruz, Dec. 23-30, 1 case, 1 death.
Nicaragua: Managua, Dec. 9-16, 1 death.

CHOLERA—INSULAR.

Philippine Islands: Manila, Nov. 18-Dec. 2, 5 cases, 4 deaths.

CHOLERA—FOREIGN.

India: Madras, Dec. 9-15, 8 deaths.
Russia: Lomza District, Dec. 7-17, 4 cases, 4 deaths; Mazowiecki, 11 cases, 4 deaths; Ostrow, Dec. 1-17, 3 cases.

PLAGUE—INSULAR.

Philippine Islands: Manila, Nov. 18-25, 1 case, 1 death.

PLAGUE—FOREIGN.

Brazil: Pernambuco, Dec. 1-15, 2 deaths; Rio de Janeiro, Dec. 3-10, 7 cases, 6 deaths.
Great Britain: Liverpool, Dec. 22, on S. S. *Oropesa*, from South American ports.
India: General, Nov. 18-Dec. 16, 11,376 cases, 8,801 deaths; Bombay, Dec. 12-19, 8 deaths; Karachi, Dec. 10-17, 6 cases, 6 deaths.

Medical Organization

Indian Territory.

SIXTEENTH DISTRICT MEDICAL SOCIETY.—Physicians of this district, about 20 in number, met at Ada, January 12, and organized a district society on the standard plan. Dr. M. W. Ligon, Ada, was elected temporary chairman, and Dr. Helge Browall, Sulphur, secretary. Permanent organization was then effected, and Dr. James W. Gilbert, Roff, was elected president; Dr. Bedford F. Sullivan, Stonewall, vice-president; Dr. William H. Greer, secretary, and Dr. W. D. Akers, treasurer. The next meeting will be held at Roff, March 1.

Ohio.

HURON COUNTY MEDICAL SOCIETY.—The regular meeting of this society was held at Chicago, Ohio, December 14. This society has applied for a charter from the Ohio State Medical Association and made up its list of charter members at this meeting.

MILLCREEK VALLEY MEDICAL SOCIETY.—This society has been established with the following officers: President, Dr. Wilson S. Saffin, Carthage; vice-president, Dr. William O. C. Harding, Elmwood Place, and secretary and treasurer, Dr. J. W. Thiel, St. Bernard. The main object of the society is the exposure of dishonest persons among the clientele of the valley who will not pay debts, although able to do so. Lists of these persons will be mailed by the secretary to each member every two weeks, and the constitution provides as follows: "It is understood that no member of this society will furnish professional services to any persons known as a 'dead beat' unless he is paid in advance for his services or has good private reasons for doing so."

MORGAN COUNTY MEDICAL SOCIETY.—Dr. Edmund C. Brush, Zanesville, councilor for the eighth district, met the physicians of Morgan County at McConnellsville, January 5, and reorganized the county society on the standard plan. Dr. Leroy S. Holcomb, Pennsville, was elected president, and Dr. J. E. Brown, McConnelsville, secretary. This completes the organization of the eighth district.

Hawaii.

HAWAIIAN MEDICAL SOCIETY.—The annual meeting of this society was held at Honolulu, Nov. 20, 1905. The afternoon session was devoted to reading papers and discussions. The following papers were read: "Acquired Race Immunity," Dr. Carl Ramus, U. S. P. H. and M.-H. Service; "Purulent Inflammation of the Middle Ear and Mastoid Cells," Dr. William G. Rogers, Honolulu; "Injuries of Bones, Muscles and Ligaments and Their Treatment by Massage and Movement," Dr. Edward Armitage, Wailuku, Maui; "Constipation: Its Cause, Effects and Treatment," Dr. F. Howard Humphris, Honolulu; "Beriberi and Some of Its Clinical Aspects from Personal Observation," Dr. Charles B. Cooper, Honolulu; "Hawaiian Fever and Typhoid Fever," by Drs. Iga, Mori, Uchida and Kuramoto, was read by Dr. Mori, Honolulu. The matter of local quarantine and purity of the water supply of Honolulu was discussed. The following officers were elected: President, Dr. James T. Wayson, Honolulu; vice-president, Dr. Edward Armitage, Wailuku, and secretary, Dr. Archibald N. Sinclair, Honolulu. In the evening the annual banquet of the society was held, at which a number of guests, including officers of the army, navy and Public Health and Marine-Hospital Service, were present.

What Can the County Society Do?

VII. CONTRACT PRACTICE.

The subject of contract and lodge practice is one of the most difficult of the practical professional problems now being faced by physicians. There is pretty general agreement that certain forms of contract work are permissible. The question is largely one of fees and of regard for the patients of other physicians. In some localities, *e. g.*, mining regions,

certain forms of contract practice seem too firmly established to be eradicated. Here and elsewhere the effort should be to keep these methods of practice at the lowest possible point, and especially to keep out of the country the more debasing forms.

So the whole matter should constitute the program of a meeting, and every endeavor should be made to see that all sides of the problem are properly presented. After full discussion some endeavor should be made, by resolution or otherwise, that will set the local limits to the extension of the practice. Conditions of professional work vary so greatly from county to county and from state to state that it is in such matters as this that the profession realizes the wisdom of that provision in our present form of organization which permits, and, indeed, compels, each county society to settle its own problems in accordance with local needs.

VIII. INSURANCE WORK.

There are various phases of insurance medicine that need discussion in the medical societies. In regard to casualty insurance there should be concerted action among physicians to aid each other in thwarting fraudulent claims. Public sentiment should be so aroused that the locality will become too warm for the occasional renegade physician who shares in malingering. The fees for casualty work and for life insurance examinations should be discussed and put on an equitable plane. Professional sentiment should be so aroused and cultivated that no decent medical man will dare to make life insurance examinations at $65 a month for 50 examinations and $1 each for examinations in excess of 50 monthly. The good life insurance companies pay a straight $5 fee and physicians know which they are.

The discussion should include reference to the inadequate fees of the fraternal orders which lead physicians to make slovenly and superficial physical examinations and bring disrepute on medicine, both in the eyes of the laity and of insurance executives. The county society may well endeavor to create a sentiment among its members favoring thoroughness in insurance work, for which good fees shall be asked. So long as insurance work is carelessly done by any large number the fees will be low, and so long as physicians pretend that in examining for some lodge they make a thorough examination for $1 or $1.50, they must not be surprised at finding it a difficult matter to get all the old-line companies to pay the $5 fee.

Each county society can well afford to devote some time to this question in the endeavor to raise the standard of professional accomplishment and thereby gain a greater compensation for its members. In different localities, too, other phases of insurance work will suggest themselves as pertinent subjects for discussion.

(To be continued.)

Society Proceedings

BOSTON TUBERCULOSIS EXHIBIT.

Held in Boston, Dec. 28, 1905-Jan. 7, 1906, under the auspices of the Massachusetts State Board of Health and the Boston Association for the Relief and Control of Tuberculosis.

The great success of this illustrated exhibition is shown by the attendance, which reached 24,560, 50 per cent. larger than the New York attendance, which covered more days' time. A large part of the material was loaned by the National Association for the Study and Prevention of Tuberculosis. The active agency in the preparation was the Boston Association for the Relief and Control of Tuberculosis, of which Dr. Edward O. Otis is president and Alexander M. Wilson secretary.

By vote of the Massachusetts Legislature $2,000 was appropriated for the purpose, and the State Board of Health was designated as the agent of the state in the matter. The cooperation between the two bodies was admirable. Dr. George B. Magrath, for the Board of Health, personally attended to many details. The daily press was most cordial, devoting large space to full reports of the meetings and printing extended advance notices. This adequate information of the public was one of the new features and very valuable.

To secure proper instruction of those attending, 125 guides volunteered. These were medical men and women, many of them well known in the profession. Besides giving an entire evening, just before the opening, in order that they might themselves learn what was to be seen, they came day after day, for a few hours at a time, and carefully explained the different features to the visitors.

The exhibit was made up largely of photographs of various great sanatoria of this country and of Europe, tabulated statistics, models of cottages, tents, rooms and apparatus, drawings and photographs of diseased tissues, samples of the best material, etc. A striking illustration was two rooms, side by side, lighted in the same way. One an example of an average tenement house, the other, the same size, clean, pure and attractive. An exhibit not shown in New York and attracting much popular interest, was a dozen high-power microscopes, under which are shown, by competent enthusiastic experts, the bacilli and the results of their activity in the tissue.

Another valuable feature of this exhibit was a carefully prepared program. In the hall adjoining the exhibition hall, there was a daily lecture and discussion at 3 p. m., and often in the evening a lecture illustrated by lantern slides. Here, on successive days, attempts were made to instruct employers and employés, physicians and nurses, boards of health, philanthropic organizations, institution superintendents, teachers, as well as the alien races, Hebrews and Italians, among whom consumption is now so common. These special exercises were appreciated, for often many hundreds were turned away because every available space had been occupied.

The chairman was in every case one whom the constituents recognized as a leader, e. g., Dr. Arthur T. Cabot, president of the Massachusetts Medical Society; Dr. Samuel H. Durgin, chairman of the Boston Board of Health; George H. Martin, secretary State Board of Education. Gen. Thomas Sherwin, president of New England Telegraph and Telephone Co., and John F. Tobin, president of the Boot and Shoe Makers' Union. The speakers included Talcott Williams, Esq., of Philadelphia, Prof. William T. Councilman, Dr. Vincent Y. Bowditch, Prof. Harold C. Ernst, Dr. Theobald Smith, Dr. E. H. Bradford, Prof. William T. Sedgwick, Prof. Livingston Ferrand and a score of others scarcely less well known.

Many points were emphasized by these speakers again and again. One was the woeful lack of beds for consumptive patients in Boston. New York has 3,216 such beds and Boston only 110. Dr. Durgin showed that of these 110, 60 were borrowed from other institutions, and 50 are in the Long Island Hospital. Moreover, 4,000 tuberculous patients are known to be living in Boston. Still, while in 1856 there were 46 deaths per 10,000 in Boston, in the past year this has been reduced to 20.46 per 10,000 of the population. The board of health proposed a few years ago to build a hospital with 250 beds for $40,000, but failed to get the money. Later, $150,000 was appropriated, but was judged insufficient by Mayor Collins and was never expended. Various speakers showed the success of the most inexpensive quarters in tents or shacks, as illustrated in the Wellesley Convalescent Home for Children, and urged that something be done at once. It was claimed that for $10,000 excellent accommodations of this sort for 150 patients could be provided. Such a method would be following out the examples of many of the best sanatoria, like Riverside at New York, Loomis at Liberty, N. Y., or Sunnyrest at White Haven, Pa.

At the closing meeting, Mayor Fitzgerald assured his hearers that a board of trustees to expend this $150,000 already appropriated would be appointed at once and a consumption hospital immediately established.

In reply to the letters sent out by the State Board of Health 360 cities and towns reported total accommodations in Massachusetts for consumptives of 971 beds, in both public and private institutions. Only 38 classify tuberculosis among the infectious diseases, which must be reported by physicians, and only 79 have ordinances forbidding expectoration in public places. A sanatorium is planned to be erected at Rutland for persons affected with consumption.

The Boston Instructive District Nursing Association, between Nov. 1, 1904, and Nov. 1, 1905, through its nurses, made 7,014 visits to consumptive homes, took care of 646 patients, of whom 96 were sent to hospitals, and has now 178 patients under its care. Emmanuel Episcopal Church last July started a tuberculosis class of 25 under the direction of Dr. J. H. Pratt. The patients treat themselves, report to him once a week and receive fresh instructions. Three are already cured and ready to go to work.

About one-quarter of the exhibit is to be kept together by Secretary Wilson and sent to various cities of Massachusetts and other New England States.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Regular Meeting, held Nov. 6, 1905.

Throat and Nose Diseases Due to Constitutional Causes.

DR. J. L. HARKNESS called attention to the interrelation of constitutional diseases, both as causative factors of and as produced by throat and nose conditions, and emphasized the importance of the specialist in these conditions being also a good general practitioner. He stated that stomach trouble had caused sinus disease. He reported the case of an anemic boy, suffering from indigestion, in whom an examination revealed the presence of a large number of adenoids, which were removed, the removal being followed by cure of the indigestion. He also referred to conditions of the upper respiratory tract, which local applications would relieve only for a short time, because the patient was suffering from rheumatism, which was cured by the administration of the salicylates. He also reported a case of soreness, dryness, dripping of mucus through the naso-pharynx, in which an examination revealed mitral incompetency, the treatment of which relieved the respiratory condition. He referred to cases of chorea and epilepsy caused by the nasopharyngeal condition, and the association of varicose veins and hernia with enlarged tonsils, and also the influence of gestation, menstruation and ovarian disease on the nasal condition.

DISCUSSION.

DR. CARLE LEE FELT stated that he had never seen any cases which he could certainly say were due to rheumatism, although many cases would be relieved by the salicylates, benzoates and the stimulation of the excretory functions. He cited several cases where the removal of adenoids had been followed by improvement in the general condition of the patient, particularly the digestive symptoms and the blood condition.

DR. RALPH BUTLER stated that one of the most important local conditions due to general causes is vasomotor rhinitis, which is usually relieved by the administration of strychnia or other tonics, while atrophic rhinitis is more amenable to local treatment. Hypertrophy of the lingual tonsils frequently causes stomach trouble, and in all these cases the general condition should be carefully investigated.

DR. WILLIAM KRUSEN emphasized the necessity for considering the correlation of all the organs of the human body in relation to nose and throat conditions, and particularly the importance of rheumatism as a causative factor.

DR. J. THOMPSON SCHELL referred to a severe case of chorea occurring in a boy 9 years of age. He had been under general medical treatment. He was found to have adenoids and enlarged tonsils, which were removed and a circumcision was done. In six weeks he had entirely recovered without any change in the medical treatment. He also referred to another case suffering from epilepsy, in which the removal of the tonsils and adenoids was followed by very marked improvement in the disease.

DR. HUGH P. MCANIFF asked whether it was necessary to remove tonsils that were merely hypertrophied, and whether this had any effect on the nervous system in cases of enuresis, stating that he had seen good result in a patient from the performance of circumcision and tonsillotomy.

DR. H. C. MASLAND referred to a case of enlarged tonsils in which the glands of the neck were supposed to be tubercular. The patient was afterward taken with tubercular meningitis, with fatal result.

DR. A. B. KIRKPATRICK thinks it a good plan to remove the hypertrophied tonsils when it can be done without serious loss to the patient, as by leaving it there is great liability of infection. He referred to the case of a policeman operated on by Dr. D. Braden Kyle six or seven years ago for septal deviation, who prior to the operation had been complaining of pain in the stomach and chest, which after the operation disappeared and has not since returned.

The Subcutaneous Injection of Paraffin for Nasal Deformities.

DR. A. B. KIRKPATRICK exhibited a patient in whom he had injected paraffin for a nasal deformity about sixty hours previously, the condition being due to an operation for straightening the septum and the dissecting out of a dislocated columnar cartilage. This operation had been performed last May, at which time some paraffin was injected, but not sufficient to produce cosmetic effect. He stated that he had never seen any fatal results from this procedure, although he had observed cases in which an excessive amount of paraffin was employed, or in which it was injected in liquid form, and not properly controlled, where the condition of the patient was not improved.

DR. HARLAN exhibited a case of paraffin injection done for saddleback deformity of the nose. The solution injected was a mixture of white vaselin and paraffin with a melting point of 108 degrees, heated to 96 degrees and injected in a semisolid condition.

DR. CARL LEE FELT referred to a plan he saw tried on three patients by making an incision in the skin along the bridge of the nose and putting in a silver plate. Only one of the three cases was a success, the others sloughing out.

Association News

THE SCIENTIFIC EXHIBIT.

Report on the Scientific Exhibit of the American Medical Association for the Session of 1905.

FRANK B. WYNN, A.M., M.D.
Director of the Exhibit.
INDIANAPOLIS.

When Portland was selected as the meeting place in 1905, many persons of excellent judgment seriously questioned the advisability of attempting a Scientific Exhibit at a place so remote from sources of pathologic supply. The dominant sentiment, however, was against any break in the continuity of the good work. This view was prompted by the conviction that even a small exhibit would have a beneficent influence in the Far West, arousing interest in scientific subjects, pathologic and otherwise. The fear entertained by some that the exhibit might fail because of the conditions named above, proved happily not to be well founded. From the extreme East (Massachusetts and the District of Columbia), the Middle States (Illinois and Indiana) and the Far West (California), came those loyal to the cause and regardless of expense, insuring a highly creditable exhibition.

The feature of distinctive interest was the inauguration of a historical department. The auspicious beginning has already secured promises of other medico-historical exhibits for the future of exceptional interest and value. Indeed, the movement bids fair to arouse enthusiasm in a field of medicine too much neglected. A detailed account of the scientific and historical exhibit follows.

I. HISTORICAL DEPARTMENT.

1. INDIANA MEDICAL COLLEGE, THE SCHOOL OF MEDICINE OF PURDUE UNIVERSITY.

FRANK B. WYNN.

An exhibit illustrative of the life and work of Dr. John S. Bobbs, the father of cholecystotomy, inscribed as follows:

Dedicated to the American Medical Association in session at Portland, Oregon, June 11-14, 1905, in memory of Dr. John S. Bobbs of Indianapolis, the founder of the surgery of the gall bladder, by the Medical College of Indiana, the *Indiana Medical Journal* and the Indianapolis and Indiana State Medical Societies, which Dr. Bobbs assisted in organizing, and on behalf of the thousands of patients whose lives have been made happy and prolonged by this beneficent operation.

The more important features of the exhibit were the following:

(*a*) *Portrait in oil and photographs of Dr. Bobbs.*

(*b*) *Mrs. Z. Burnsworth* of McCordsville, Ind., the first person operated on for gallstones. The operation was done June 15, 1867, on the site of the Commercial Club Building, in Indianapolis, and described by Dr. Bobbs in the Transactions of the Indiana State Medical Society for 1868. He was president of the society that year.

Mrs. Burnsworth was brought to the Portland session at the expense of the university, and was formally presented in the exhibit hall at a demonstration on Thursday, July 13, by Dr. L. H. Dunning of Indianapolis. On that occasion she publicly expressed her desire that at death a postmortem examination should be made to determine the exact results which followed the operation. Mrs. Burnsworth is now 68 years of age and in good health.

Dr. Dunning, in presenting Mrs. Burnsworth, spoke as follows:

Mr. Chairman, Ladies and Gentlemen:

The profession of Indiana has taken great pleasure in accepting your chairman's invitation to bring to your exhibit evidences of the masterful work of Dr. John S. Bobbs in the performance of the first cholecystotomy. In the exhibit which we present I am sure one of the first things to catch your eyes has been the portrait of Dr. Bobbs. This portrait was painted during the strength of the middle period of his life, and it at once impresses one as being the portrait of a man who possessed unusual intellect, purpose and determination.

Dr. Bobbs was a kindly man, and was always moved by high purposes. He hated shams and hypocrisies. He idealized the truth and struggled to realize his ideal. Dr. Bobbs was in his day the foremost surgeon of Indiana. He was a man of great strength of character and hence of wide influence. As evidence of his influence, it may be mentioned that he was in the forefront of all progressive movements in the city and state, especially in everything relating to medicine and surgery. He helped to develop the system of administration in the care of the insane, and was one of the first trustees of the Central Insane Hospital. He was influential in organizing the Indiana State Medical Society. He was one of the founders of the Medical College of Indiana, and was its first professor of surgery. In this institution he taught surgery for many years and gave to it his large private library. He also founded and endowed the Bobbs Free Dispensary. He was medical director of the Indiana troops in the Civil War, and served his state efficiently as state senator. He brought to every position he occupied marked ability and faithfulness.

It is not my purpose to present a eulogy of Dr. Bobbs. Another, Dr. P. H. Jameson, has already done this work. It is submitted for your perusal in the reprint, a copy of which you are asked to take with you.

Unquestionably, the greatest work of Dr. Bobbs' life was the performance of the operation of cholecystotomy on Mrs. Burnsworth, the lady who sits in our presence to-day. This lady has endured the long and fatiguing journey from our city to this meeting place. She has traveled with friends, Indiana physicians and their wives, who have had a tender solicitude for her good health and spirits. This good woman has had two crowning days in her life. The first was the one on that mid-June day in 1867, when, in the discharge of his duties to a patient, Dr. Bobbs did, on her person, the first cholecystotomy. The second crowning day is this one, in which, after a long and fatiguing journey, she presents herself before this learned body of men to pay her tribute to the memory and work of her benefactor, Dr. Bobbs. Let the memory of her name be co-existent with that of Bobbs, as is Mrs. Crawford's with that of McDowell and Anarcha with Sims.

The date of Dr. Bobbs' operation on Mrs. Burnsworth was June 15, 1867. It was begun as an exploratory incision, the doctor having told the patient that he was uncertain as to the nature of her tumor, and that he could give no assurance that it could be removed. For a detailed description of the technic of the original operation, you are referred to Dr. Bobbs' original paper, a reprint of which you will find in the one above referred to.

As there has been some misunderstanding relative to some of the procedures in this operation, even by those who have written about it, it may not be inappropriate for me to briefly outline some of the steps of the operation. A central incision was made in the median line between the umbilicus and pubes. On entering the abdomen, the omentum was found adherent to the parietal peritoneum. Failing to separate these adhesions entirely, the omentum was torn through, uncovering the cyst on its anterior aspect. Finding it impossible to deliver the tumor through the median incision, the upper portion of the incision was extended to the right of the umbilicus, directly upward and outward over the prominent part of the enlargement, which was made to pass through it. When the cyst was opened by incision, the fluid contents escaped and along with it a large number of gallstones. The gall bladder was sacculated, and a few of the stones were hooked out of these sacks by the finger. One stone was left, because Dr. Bobbs found no communication between the sack containing it and the cavity of the gall bladder. Further on in his paper, Dr. Bobbs says the stone left "was probably lodged in one of the biliary ducts." The opening in the gall bladder was closed by a single stitch, the ends of which were cut short and the gall bladder pushed back into the abdominal cavity. The abdominal incision was closed by sutures and adhesive plasters. There was an uneventful recovery, except that there was a small stitch abscess in the abdominal wall.

The greatest interest in this case must be the historical one. Yet it is impossible to close our eyes to the scientific interest also attached to it. Where was the unremoved stone located? Dr. Bobbs thought it was in one of the biliary ducts. Was it not probably in the cystic duct, into which it had passed, become lodged, exciting irritation, infection occurring, followed by inflammation, ulceration, and final closing of both the inlet and outlet of the duct?

What occurred in the interior of the gall bladder after it was emptied of its contents? Dr. Bobbs reported after ten months, "No appearance of enlargement was observable." Is it not probable that the remaining stone produced considerable irritation, and some constitutional disturbance, for the author states that since the operation she has had intermittent fever at intervals, and impaired digestion, and at such invasions complains of pain in the region of the enlargement. What became of the stone? What is the condition of the gall bladder and the surrounding tissues to-day? The latter question can not be fully answered without an autopsy.

The result of my examination yesterday leads me to think that the gall bladder and surrounding tissues and organs are massed together by adhesions.

(*c*) *Documents:* A copy of the "Transactions of the Indiana State Medical Society for 1868," containing the original article by Dr. Bobbs entitled "A Case of Lithotomy of the Gall Bladder"; other addresses and papers; reprints of the *Indiana Medical Journal* and the *Johns Hopkins Bulletin;* letters and testimonials from professional friends.

(*d*) *Photographs* of distinguished professional confrères of Dr. Bobbs in Indianapolis and Indiana as follows: George W. Mears, Thomas B. Harvey, Joseph Eastman, Theophilus Parvin, D. H. Oliver, W. H. Wishard, P. H. Jameson, J. A. Comingore and John P. Avery of Indianapolis; James F. Hibberd of Richmond and G. W. H. Kemper of Muncie.

Drs. Comingore and Avery were present when the operation was performed. It is fitting to close the descriptive consideration of this exhibit by the following just and beautiful tribute to Dr. Bobbs by one who was often his assistant in surgical operations, and perhaps knew him more intimately than any other practitioner of that day:

INDIANAPOLIS, June 28, 1905.

FRANK B. WYNN, M.D.

Dear Doctor:—I am gratified to learn that at the ensuing session of the American Medical Association at Portland you propose to treat of the career of the late John S. Bobbs.

From 1849, when he began the practice in Indianapolis, to his death I knew him well. He was the soul of honor and generosity in his demeanor, not only toward the profession, but his neighbors and fellow-citizens. He was incapable of sham, trickery or double dealing in the remotest degree, and still he was self-assertive and unyielding in the maintenance of his just rights, but in such a way as rarely to offend. He never administered a placebo. He gave a remedy with a definite purpose or nothing. In his work as a surgeon he was ready to do whatever another had done; and, furthermore, to take the initiative where science and common sense indicated the path. He hesitated at no responsibility, however great. I was associated with him in considerable of his work, but can not here enter into details. His name should be enrolled with those of Rush, Physic, McDowell, Dudley, Gross, Pancoast and other great men who have been an honor to our country. Yours respectfully.

P. H. JAMESON.

2. HISTORICAL EXHIBIT RELATING TO THE EARLY LIFE OF W. T. G. MORTON.

BY HIS SON, WILLIAM JAMES MORTON, NEW YORK.

This consisted of:

(*a*) *A portrait of Dr. Morton.*

(*b*) *Photographic reproduction of his medical diploma.*

(*c*) *Photographic reproduction of his medical cards* while a student in the Harvard Medical School.

Elaborate amplification of this exhibit is promised for a future session, designed to show the relation of Dr. Morton to the discovery and introduction of ether anesthesia.

II. SCIENTIFIC EXHIBITS.

3. HARVARD UNIVERSITY.

A. Department of Physiology, Harvard Medical School.

WILLIAM T. PORTER.

Professor Porter exhibited some of the Harvard physiologic apparatus. This apparatus is distinguished by simplicity in design, sound workmanship and low cost. It is "manufactured" with special tools, and ordinarily not less than one hundred pieces are handled at one time. This collective method, which is that pursued in the best machine shops, combined with the utmost simplicity of design, greatly reduces the cost of the individual apparatus. It enables the physiologist to secure both for research and for instruction an equipment which is at once well made, inexpensive and trustworthy. The enterprise aims to advance the laboratory teaching of physiology. Among the apparatus shown were the following:

Cannulas for the blood vessels and the trachea; quantitative circulation scheme. (In this latter a cam reproducing the intraventricular pressure curve causes in the artificial ventricle the changes of pressure actually observed in the dog. With this scheme all the physical phenomena of the circulation can be accurately demonstrated.) Non-polarizable electrodes made of potter's clay; capillary electrometer for the stage of a microscope; ergograph; artificial eye in which the course of the rays is made visible; inductorium; kymograph; leveling table; muscle levers; membrane manometer; mercury manometer; moist chamber; an apparatus for studying the changes in muscular contraction when the muscle is heated; respiration scheme, with which the variations in the pulmonary and pleural transmissions may be studied quantitatively; rheochords; signal magnet; stands; clamps; electric keys; stopcock, for hemodynamic work; tambour; tuning fork; and work adder, with which the total work done by muscle in lifting a weight may be recorded.

B. Department of Pathology, Harvard Medical School.

HENRY A. CHRISTIAN.

The demonstration of this exhibit was highly appreciated. It comprised:

I. Biology of the organism of actinomycosis.
Presented for Dr. J. H. Wright, director of the Pathological Laboratory of the Massachusetts General Hospital.
A series of fifteen lantern slides were demonstrated showing (*a*) the appearance of the organism of actinomycosis growing in sugar agar with the organisms massed as a definite layer some distance below the surface of the agar and small scattered masses of growth throughout the media; (*b*) stained sections of the sugar X 1,500, showing the branched forms of the organism; (*c*) smears from bouillon cultures, showing the organism largely as a bacillary form; (*d*) portions of colonies of the actinomyces from blood serum or serous pleuritic fluid, showing stages in the formation of clubs; (*e*) the lesions and organism from inoculated guinea-pigs.
II. Pathologic histology of varicella.
Presented for Dr. E. E. Tyzzer, assistant in pathology, Harvard University Medical School.
A series of nine enlargements from microphotographs were exhibited and twenty lantern slides demonstrated, showing (*a*) the appearance of the varicella lesion from its beginning to the stage of advanced healing; (*b*) the large multinucleated cells (giant cells) so characteristic of the lesion; and (*c*) the peculiar nuclear and cytoplasmic inclusions in the epithelial and connective tissue cells believed to be degeneration products associated with direct cell division.
III. Paintings and drawings showing the macroscopic and microscopic appearance of tissues from a case of multiple myeloma.
IV. Painting of the cut surface of the liver in a case of acute yellow atrophy of the liver in a child of five.

4. COMMONWEALTH OF MASSACHUSETTS—STATE BOARD OF HEALTH.

CHARLES HARRINGTON, SECRETARY.

This very complete exhibit consisted largely of models, as follows:

(*a*) *A model of the experiment station at Lawrence.*
This station has been in operation since 1887 for investigations on the purification of water and sewage and allied subjects.
(*b*) *A model of the Lawrence city filter.*
This filter was constructed in 1893 by the advice and according to the plans of the State Board of Health of Massachusetts. It is 2¼ acres in area, and it was the first large sand filter built in America. It has saved many hundred of lives for the city of Lawrence.
(*c*) *Three small filters* to illustrate three types of filters in operation at the experiment station.
(*d*) *Case containing bottles* used in the collection of samples for chemical analysis.
(*e*) *All forms* or sheets used in reporting analyses.
(*f*) *Large tables* showing the force employed by the State Board of Health in this work, the number of samples examined, both chemically and bacterially, from the beginning of the work up to the end of 1904, and diagrams showing the effect of polluted and pure water on the total death rate and death rate from typhoid fever of two cities in the state.
(*g*) *Photographs* of laboratories, experiment station and Lawrence filter.

5. UNITED STATES ARMY MEDICAL MUSEUM.

JAMES CARROLL.

This extraordinary series of 100 bromid enlargements of bacteria and protozoal parasites was much admired. Dr. Carroll's demonstration made them highly instructive.

M. lanceolatus, from pure culture, and the same organism showing capsules in the fresh blood of an inoculated rabbit (X 7,000).
Streptococcus pyogenes (longus and brevis), and a streptococcus from a case of suppurative mastitis in the cow (X 7,000).
M. aureus. M. tetragenus. M. cereus flavus (X 7,000).
M. gonorrhœæ in a pus cell (X 7,000).
B. prodigiosus, B. subtilis, B. mesentericus vulgatus, B. megatherium and *Cladothrixdichotoma* (X 7,000).
Bacillus of acute suppurative conjunctivitis, B. diphtheriæ, Pseudo-diphtheria bacillus, B. anthracis stained for spores, *B. anthracis* vegetative forms, *B. typhosus, B. coli communis, B. icteroides* (Sanarelli), *B. choleræ suis, B. influenzæ*, bacillus of rabbit septicemia, bacillus of swine plague, bacillus of leprosy, *B. aërogenes capsulatus, B. pyogenes fœtidus, B. tuberculosis* in sputum, *B. tuberculosis* in giant cell in a tubercle of the lung, *B. pyocyaneus, B. proteus vulgaris, B. tetani* (showing spores) (all X 7,000.)
The following bacteria stain for flagella:
Spirillum undula, B. subtilis (two), *B. proteus vulgaris, B. pyocyaneus, B. typhosus* (two), *B. tetani* (two), *B. choleræ suis* (two), *B. coli communis, B. icteroides* (Sanarelli) (all X 7,000).
Vibrio choleræ asiaticæ, S. undula, spirillum of Müller, spirillum of Metchnikoff (X 7,000).
Actinomyces boris, in jaw of a cow (X 7,000).
Spirillum of relapsing fever, in the blood of a monkey (two) (X 7,000).
Estivo-autumnal malarial parasites in stained human blood (four) (X 7,000).
Estivo-autumnal malarial parasites in fresh human blood (three) (X 7,000).
Tertian malarial parasites in stained human blood (three) (X 7,000).
Quartan malarial parasites in stained human blood (X 7,000).
Leishman-Donovan bodies in smears from human spleen (five) (X 7,000).
Trupanosoma lewisi in stained blood from a white rat (X 7,000).
Filaria sanguinis hominis in fresh human blood (X 1,000).
Parasoma bigeminum in stained blood of steer, dead of Texas fever (two) (X 7,000).
Amœba coli in fresh human stool from a case of dysentery. Eight photographs of the same ameba taken at intervals of a few seconds to show changes of form (X 6,550).
Strongyloides intestinalis in human feces (two) (X 700).
Ova of Uncinaria americana (ten), showing sterile forms and various stages of segmentation (X 3,500).
Ovum of Uncinaria americana, showing living embryo in shell (X 3,500).
Uncinaria americana, showing fresh larvæ (X 700).

6. PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

M. J. ROSENAU,

Director Hygienic Laboratory.

This beautiful and complete exhibit was formally demonstrated by Dr. Rosenau under two headings:

A. The American Unit for Standardizing Diphtheria Antitoxin.

This exhibit comprised a demonstration of the unit and the apparatus for making it. The methods of preserving, bottling, distributing and testing the standard toxin and antitoxin were shown, also the special syringes used for inoculating animals with precise amounts devised for this work and the standardized flasks and pipettes.

The demonstration of this exhibit consisted of a concise statement of the good results obtained under the law enacted by Congress, approved July 1, 1902, entitled "An act to regulate the sale of viruses, serums, toxins and analogous products in the District of Columbia, to regulate interstate traffic in said articles, and for other purposes." This law only applies to those persons who engage in interstate traffice in these products and does not reach a few boards of health who make and distribute diphtheria antitoxin within their own state.

In order to engage in interstate traffic in antitoxin it is first necessary to obtain a license, which is issued by the Secretary of the Treasury. The license is issued only after a careful inspection of the establishment by an expert. This inspection consists of a careful scrutiny of the methods, materials and equipment used in the manufacture of the serums in order that a safe and potent product may be assured. In addition to these inspections, which are held once a year, the products of each licensed manufacturer are bought on the open market and examined in the Hygienic Laboratory of the U. S. Public Health and Marine-Hospital Service. Products below the strength claimed for them and those showing impurities are at once reported to the Surgeon General, who takes proper steps to have the matter corrected.

The unit for measuring the strength of antitoxin is based on that established by Ehrlich, and is made in the Hygienic Laboratory in order that there may be a legal American standard of measurement. The antidiphtheric serum that has been standardized and used as the unit of strength for the measurement of diphtheria antitoxin is kept under strict conditions of light, heat, moisture, etc. From time to time duplicates of the serum will be made to guard against deterioration or accidents to the original.

The standard serum is preserved in small bottles, which were shown. Every two months one of these tubes is opened, tested and distributed to the licensed manufacturers and others who are working in this line. The particular object of this standard is to insure the strength of antidiphtheric serum sold in the United States by licensed manufacturers.

B. The Bacteriologic Impurities in Vaccine Virus.

Petri dishes showing the common bacteriologic impurities in vaccine virus were shown; also agar slants of pure cultures of all the ordinary organisms found in vaccine virus. The publications of the Public Health and Marine-Hospital Service on the bacteriologic impurities found in vaccine virus and on the antiseptic and germicidal properties of glycerin, etc., were also exhibited.

The law of July 1, 1902, governing the manufacture of diphtheric antitoxin applies with equal force to the propagation of and interstate traffic in vaccine virus. The contrast between the impurities in vaccine virus before and after the operation of the law was demonstrated. It was shown that before the law became effective an examination of vaccine virus in the Hygienic Laboratory often showed unclean virus, containing many thousands of bacteria per point or per capillary tube, some of them virulent for laboratory animals. Since the licensing, inspection and frequent examination of

the products found on the open market, the bacterial contaminations have shown a gratifying improvement. It is now uncommon to find a vaccine point sold on the open market containing more than a few hundred bacteria, most of them harmless saprophytes.

Several firms had not the proper equipment and experts capable of producing a safe vaccine virus; these were refused a license and compelled to retire from business.

Foreign manufacturers who sell biologic products in the United States are required to submit to an inspection and license the same as American manufacturers.

7. NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.

WINFIELD S. HALL.

Great credit is due to the Department of Physiology of this institution for the constant and efficient support given the Scientific Exhibit from year to year. The following is a list of the apparatus demonstrated by Dr. Hall at the Portland session:

Physiologic apparatus:

Kymograph.
Key, Du Bois Reymond.
Key, simple, with platinum point.
Mercury commutator, Pohl's.
Muscle forcep.
Crank myograph.
Cardiograph, Marey's.
Vertical writing lever.
Chest pantograph.
Canula, set of six.
Frogboard.
Tambour, Marey's.
Tambour pans.

Tuning fork, electric, 100 vibrations.
Metronome, with mercury cup after Kronecker.
Time marker, single, electric after Pfeil.
Induction coil, Du Bois Reymond, with adjustable interrupter, new form.
Dynamometer and dynamograph (Smedley's) adjustable grip (Child Study Report, No. 2, Chicago Board of Education, page 21).
Ergograph, Mosso's modified, by Lombard, complete with arm support and weights.
Frog heart lever with tripod.
Electrode, non-polarizing, clay point.
Electrode, non-polarizing, brush point.
Support, heavy, tripod base, with rod 24 inches long.
Right angle clamp for use with support.
Steel stylus for use with writing levers.
Aluminum holder for same and standard clamps, 4 inches.
Double automatic stimuli key, Reichert's.

8. COOPER MEDICAL COLLEGE.

W. OPHÜLS.

This was a very creditable collection, and constituted the bulk of wet specimens presented at the meeting. It consisted of:

(*a*) *Kaiserling preparations*—48 in number.

Eight specimens of endocarditis, of septic origin, illustrating various stages.

Several specimens of chronic endocarditis, some of which showed complete healing of lesions and an unlooked-for regenerative power of the valves.

One specimen of heart showed a piece of trocar embedded in the septum, the point projecting into the ventricular cavity. It was discovered by accident in an autopsy on a subject dead of chronic tuberculosis of the lungs.

One specimen of primary sarcoma of the stomach.

Two specimens of primary malignant cystic tumor of the peritoneum.

Three specimens of primary adenocarcinoma of the liver with abundant formation of bile in primary tumors and metastases. In two of these there was no cirrhosis.

One specimen showing chronic gastric ulcer in rabbit following resection of both vagi below the diaphragm.

Five specimens illustrating the lesions produced by infection with oidium coccidioides (2 in man and 3 in animals).

One specimen in which there was a plainly visible gray discoloration of the cerebral cortex due to presence of innumerable malarial parasites in a fatal case of malaria.

(*b*) *Thirty-six x-ray diapositives* prepared by William Lekmann, as well as a series of *x*-ray photographs.

(*c*) *Dermatologic group* prepared by D. W. Montgomery. They comprised

(1) *Collection of photographs* of interesting cases.

Among these were several illustrating the action of arsenic paste on malignant epithelioma of the skin and some perforating ulcers of the feet in leprosy.

(2) *Twenty-four diapositives* illustrating the skin lesions, the histologic changes and the parasites in coccidioidal granuloma.

9. SCHOOL OF MEDICINE OF PURDUE UNIVERSITY.

HELENE KNABE.

This exhibit consisted of the following:

(*a*) *Series of twenty x-ray photographs* illustrative of fractures, gallstones, renal and vesical calculi, prepared by A. M. Cole.

(*b*) *Series of dermatologic photographs* (enlarged) prepared by A. W. Brayton.

(*d*) *Series of enlarged photographs* illustrating the development of a case of plexiform neurofibroma, of the face and cranium, from infancy to adult life; a gross specimen of the same showing the tortuous, worm-like cords; series of water-color drawings by Dr. H. Knabe showing the histopathologic changes (report of a case read before Section on Pathology and Physiology by F. B. Wynn).

(*e*) *Macratome* designed by F. B. Wynn for making section of gross specimens for museum mounts; especially adapted for preparing gelatin mounts in petri dishes and the like.

10. PERSONAL EXHIBIT.

MYRON METZENBAUM, CLEVELAND.

(*a*) *Series of photographs* showing the clinical value of radium in the treatment of epithelioma and lupus vulgaris.

(*b*) *Two prints* of a false ulnar joint from negatives made, respectively, by radium and *x*-ray exposures. The *x*-ray was a three-minute exposure, while one week was required for the radium picture. From comparison it is shown that the *x*-rays have a far greater power of differentiation between bone and connective tissue than has radium. The latter is, therefore, impracticable for making radiographs.

Therapeutics

[It is the aim of this department to aid the general practitioner by giving practical prescriptions and, in brief, methods of treatment for the diseases seen especially in every-day practice. Proper inquiries concerning general formulae and outlines of treatment are answered in these columns.]

Pneumonia.

In the treatment of pneumonia J. T. Scott, in the *Central States Medical Magazine*, recommends that the patient be kept in bed in a well-ventilated room, at a temperature varying between 65 and 70 F. All the excretions should receive careful attention, unusual care being taken with reference to the sputum. The diet, while light, should be nutritious, and administered at regular intervals. It should consist chiefly of broths and milk, and egg albumin.

In the medicinal treatment, among those preparations which are to be used as cardiac stimulants, he mentions alcohol, aromatic spirits of ammonia, strychnia, digitalis and in some case atropin. In severe cases of circulatory depression he recommends normal salt solution as being of service, given hypodermically or by the bowel. If oxygen is to be of any service in these cases, it must be administered comparatively early, and not omitted until the last stages have been reached.

In those cases in which high temperature is present, associated with disturbance of the nervous system, the cold bath, cold pack or sponging is advised along with the local application of the ice-cap. This procedure is especially of service in restless, irritable and delirious patients. In debilitated subjects, however, tepid baths only should be given. In all cases during the bath friction to the skin should be given, with the previous administration of alcohol. He states further, also, that the baths should not be given too often nor continued for too long a time.

In order to promote the elimination from the skin, pilocarpin may be given, in which instance some cardiac stimulant should be administered in conjunction with it. He regards the cough as a means of exhaustion in certain cases, and states that it should be watched carefully and overcome by sedatives of there be any indications of exhaustion from this condition. For such a cough he recommends heroin as the most valuable preparation, given in doses of 1/12 grain (.005) each, and repeated in four hours, if necessary.

In cases in which the expectoration is too dry and tenacious, Scott recommends the administration of a combination of ammonium chlorid and terpin hydrate. The following combination is also recommended by him for such conditions:

R.	Strychninæ nitratis.....gr. 1/30	.002
	Guaiacol carbonatis.....gr. i	.06

M. Ft. cap. No. i. Sig.: Take one such capsule every four hours.

Acute Prostatitis.

In the treatment of acute prostatitis the patient should be put to bed at once, according to H. M. Christian, in *American Medicine*, and a saline laxative administered once daily. Opium or belladonna suppositories should be used by the bowel two or three times a day, and salol and urotropin (hexamethylenamin) given by the mouth as often. All local urethral treatment should be abandoned, and rectal irrigations should be employed two or three times a day. Irrigations with very hot

water are recommended as giving the greatest relief to the patient. These irrigations can be given easily by means of the ordinary fountain syringe. The patient should be instructed to retain the hot water as long as possible before allowing it to pass out. This procedure of filling the rectum with hot water should be repeated twice at each treatment. The fountain syringe is especially spoken of by the author as being used with much less risk in producing damage to the gland. After a week or ten days, when the acute inflammatory symptoms have begun to subside, and the tenderness of the prostate has decreased by rectal palpation, Christian recommends gentle massage of the gland with the index finger, in order to hasten resolution. This form of treatment must be very gently applied at first in order to avoid the danger of setting up an epididymitis as a complication, which might occur with a too vigorous massage. In the technic of this procedure the patient should be instructed first to empty the bladder. The anterior urethra is then washed out with a solution of silver nitrate, 1 to 8,000, and the bladder subsequently filled with the same solution. While holding the silver solution in the bladder the patient should be instructed to lean over a chair or a table while the physician strips each lobe of the prostate lightly with the index finger about five times. The patient is then instructed to empty the bladder again. In this way the posterior urethra is thoroughly irrigated, the distended follicles of the gland are emptied, and the contents washed out from the urethra along with the irrigating fluid. This treatment should be repeated twice a week for one month or six weeks, at the end of which time resolution will have taken place in the greater percentage of cases.

There is danger, however, of chronic prostatitis developing, requiring a much longer period of treatment before relief can take place.

In addition to the foregoing treatment the author recommends inserting suppositories containing 10 minims (.65) of ichthyol into the rectum at bedtime, as a procedure of great value in promoting resolution. As there is no specific remedy in such conditions, the indications for the internal medication must depend on the condition of the patient under treatment. In the acute parenchymatous prostatitis the suffering of the patient is much greater than in the follicular form, and in such cases Christian recommends that a constant stream of water be passed into the rectum through a tube which has a double flow in order that a constant flow of cold water may come directly against the prostate. This plan of treatment can be pursued almost indefinitely, arranging the temperature to suit the individual case, using the water as cold as can be well tolerated. When the symptoms, such as rigor, hectic fever, and fluctuation on palpation, occur, surgical intervention is necessary.

Intratracheal Medication of Tuberculosis.

The following combination is recommended by the *Journal des Practiens* in the treatment of tuberculosis by the intratracheal method:

℞ Olei eucalypti
Olei thymi, āā ..... m. lxxv 5
Olei cinnamoni ..... m. iii 20
Olei olivæ (sterile) ..... ʒiii 90
Iodoformi ..... gr. lxxv 5

M. Ft. mistura. Sig.: Forty-five minims to be injected into the trachea once or twice daily.

Dermatitis Venenata.

Dr. E. S. McKee, in *Cincinnati Lancet-Clinic*, states that having been poisoned by poison oak or poison ivy twice, and having suffered severely, he feels that he knows many times more about the trouble than he possibly could have known had he not had this experience. His first attack, contracted at the big trees at Santa Cruz in 1897, was much relieved by bathing in the water of the soda springs at Mount Shasta, and permanent relief was experienced from a plunge and a swim in the hot lake at Mammoth Hot Springs, Yellowstone Park. The water of this hot lake is impregnated with silicate of magnesia. The second attack was contracted in the suburbs of Cincinnati in 1905 and was quite severe, putting both eyes out of use and extending over the whole body, lasting with nervous symptoms for three weeks. Weak phenol lotions and salves gave temporary comfort, as did weak lotions of borax. Wrapping the parts with cloths saturated in lotio plumbi et opii proved of more lasting benefit, but gave him a severe cold. Dusting the whole body with rice powder gave pronounced relief for several hours, and was nearly always followed by sleep. Saturated solution of aluminum and lead acetate (Burrows' solution), a tablespoonful in a pint of water, used as a lotion, gave fair relief. In his frantic efforts to get the poison off his hands he found that a thick lather of soap gave temporary relief, and the more ordinary the soap the greater the relief. Alcohol gave relief, but the ordinary strength caused too much burning of the skin. He found the following the most useful remedy in stopping the burning and itching, and in checking the spread of the disease:

℞ Alcoholis ..... ʒii 53
Aquæ dest. ..... ʒiss 47
Liq. plumbi subacetatis dilati ..... ʒii 60

Sig.: Apply locally.

This gave relief and allowed sleep for six or eight hours. The greater part of the skin exfoliated and the new skin was exceedingly tender for some time, requiring the protection and nourishing influence of olive oil and lanolin. The extreme nervous symptoms yielded to 2-gram doses of sodium bromid given from three to six hours apart, with the addition of two drops of liquor potass. arsenitis to each dose to prevent acne. Dr. McKee says that if one knows that he has been exposed to poison ivy or poison oak and is susceptible, he should bathe the exposed parts immediately with the dilute alcohol of the United States Pharmacopeia. If he applies the alcohol within two hours he will probably stop the progress of the disease by counteracting the poison.

Solutions for Sprays in Coryza.

A correspondent asks for solutions to be used in steam atomizer.

The use of steam inhalations through the nose for the treatment of acute coryza will not afford relief.

The following combinations are recommended by some laryngologists for use locally in an atomizer that will spray oil.

As a stimulant to the mucous membranes:

℞ Thymol ..... gr. 1/3 02
Olei caryophylli ..... m. iii 20
Liquid petrolati ..... ʒi 30

M. Sig.: To be used in the atomizer as a spray in the nares two or three times a day. Or:

As an antiseptic the following combination is recommended:

℞ Acidi carbolici
Menthol, āā ..... gr. i 06
Olei gaultheriæ ..... m. i 06
Liquid petrolati ..... ʒi 30

M. Sig.: As a spray three or four times a day.

As a sedative the following:

℞ Menthol ..... gr. i 06
Cocainæ (alkaloid) ..... gr. iii 20
Liquid petrolati ..... ʒi 30

M. Ft. mistura. Sig.: To be used as a spray two or three times a day.

[The latter combination should not be refilled without the consent of the physician in charge.]

Other combinations which may be used locally as a spray are as follows:

℞ Olei cassiæ ..... m. ii 12
Menthol ..... gr. 1/4 015
Liquid petrolati ..... ʒi 30

M. Sig.: Locally as a spray. Or:

℞ Olei caryphylli ..... m. viii 50
Terebeni ..... m. x 65
Liquid petrolati ..... ʒi 30

M. Sig.: As a spray.

Internally a combination similar to the following is recommended:

℞ Ext. hyoscyami ..... gr. vi 4
Ext. nucis vomicæ ..... gr. iv 2
Camphoræ monobromatæ ..... gr. xl 2 60

M. Ft. capsule No. xii. Sig.: One capsule four times a day.

Medicolegal

Medical Experts on Matters of Common Knowledge.

The Supreme Court of Nebraska holds, in Turley vs. State, that matters of common observation, and matters on which jurymen are as capable of forming an opinion as are physicians and surgeons, are not matters for expert medical testimony. But it is not necessarily reversible error to allow a witness to testify to a truism with which all intelligent men are presumed to be acquainted, nor is it in all cases reversible error to allow a witness, over objection, to testify to a proposition of law, or a fact of science or nature which is a matter of common knowledge. Thus the court takes it that the proposition that a human body, when suddenly deprived of all self-control, will fall in the direction of the momentum of the body is a truism with which all intelligent men must be presumed to be acquainted, so that an answer of a medical witness to that effect could not be prejudicial, although the question calling for it could not be properly regarded as a medical question.

Recoverable Expenses in Injury Cases.

The Supreme Court of Illinois says, in Chicago City Railway Co. vs. Henry, a personal injury case brought by the latter party, that one who has been injured by the wrongful act of another may recover all reasonable expenses which he has incurred for physician's or surgeon's fees, medicines, and nursing rendered necessary in endeavoring to be cured of his injuries. He must exercise reasonable care to effect a cure and mitigate the effect of the wrongful act and is entitled to recover all legitimate expenses incurred for that purpose, and, if it is proved that further expenses for a surgical operation or medical treatment or attendance will necessarily be required, the jury may take that fact into account. But the court holds that a question as to what a man in the plaintiff's station in life would have to have to be properly operated on by a competent surgeon for hernia, which was said to be $250, was improper and the evidence incompetent in any view of the case, it not being a case where the surgical operation must be performed, but one where the plaintiff could have it performed or not, as he saw fit, while there was no evidence tending to show that an operation was contemplated.

Previous Physical Condition in Injury Cases.

The Court of Civil Appeals of Texas says that it was contended, in the personal injury case of Green vs. Houston Electric Co., that the plaintiff, having alleged, in substance, that she was, prior to the accident complained of, a sound, healthy and active woman, and that her injuries were entirely produced by the accident, and having supported the allegations of her petition by her testimony, and there being testimony tending to show that she was, in fact, physically weak and unsound before the accident, she was not entitled to recover damages for such injuries produced by the accident as only aggravated a previously diseased or unsound physical condition. But this court can not give its assent to a rule which, in its logical application, would put on a plaintiff the danger of being turned out of court if he should not state in his petition every physical weakness or ailment which might be aggravated in its effect by an injury wrongfully inflicted on him. The court can not find that the doctrine referred to has ever been approved elsewhere; and, while it has not been able to find any case denying it, it thinks that it is at least persuasive that in a multitude of cases examined it appears that persons have been held entitled to recover damages for aggravation of a previously diseased physical condition where the allegations of the petition made no reference to such condition.

No Implied Obligation to Reimburse State for Care.

The Supreme Court of Iowa holds, in the case of State vs. Colligan, that, in the absence of any statutory provision authorizing recovery by the state as against an insane person confined in the state hospital, no recovery for the necessary expenses of his support can be had. It says that it finds no authority for holding that the state, having established hospitals for the insane, which are largely charities and provided, in the interest of humanity and for the protection of society, that insane persons shall be confined therein, has any common-law right of recovery against those who receive the benefits of such public charities. The uniform rule seems to be that there is no liability on the part of the person who receives such benefits, or on the part of his relatives, to make compensation, save as such compensation may be expressly required and provided for by statute. No such obligation is to be implied. This has been the uniform holding, also, as to public aid furnished to poor persons.

Nor does the court consider that a recovery against a nonresident, who was committed to the hospital while in the state, was authorized by the first clause of Section 2297 of the Iowa Code, which reads: "The provision herein made for the support of the insane at public charge shall not be construed to release the estates of such persons nor their relatives from liability for their support." It says that it seems to it that this falls far short of being a statutory provision authorizing a recovery by the state in such cases; and, as the other language of the section relates only to the enforcement of liability by the county of the residence of the patient, which has been compelled by the provision of the statute to pay to the state the expense of his maintenance in a hospital or has supported him in a county institution, it is concluded that there is no expression of any legislative intention to create a liability which may be enforced by the state against the patient or his property.

Mortality Tables and Their Use.

The Court of Appeals of Kentucky says, in the Illinois Central Railroad Co. vs. Houchins, a personal injury case brought by the latter party, that, when the action is to recover for the death of a person injured, as the measure of recovery is the value of his capacity to earn money, standard tables, showing the ordinary expectancy of life, are held to be competent evidence. Where, as there was in this case, there is proof tending to show that the plaintiff's capacity to earn money is impaired or partially destroyed, the probable expectancy of life is equally competent, for the measure of recovery here is in part compensation for the impairment of his capacity to earn money. If evidence of the ordinary expectation of life may be received where the capacity to earn money is destroyed by death, it is hard to see why such evidence can not be equally received where the capacity to earn money is partially destroyed; for in either case the jury are, in making up their verdict, to be governed by the capacity to earn money which has been destroyed, and whether this is a partial or total destruction is not material.

The Carlisle Tables are based on actual observation in the towns of Northampton and Carlisle, England. The deaths were taken, not from selected lives, but from the population generally. These tables have been very generally admitted by the courts of this country. The field, however, was so narrow that they have never been regarded as satisfactory. It is a matter of common knowledge that the expectancy of life is increasing. The American Table of Mortality has been made out from the combined experience of the life insurance companies of America, and is now regarded as the standard throughout the United States. It is true that it is based on insurable lives or healthy persons. Still, there is no great difference between it and the Carlisle Table. The Wigglesworth Tables were made before 1858. Since then there has been great advance in medical science, and the data on which such tables are calculated as much fuller now than then. The court, as information increases, will use that table which is the best and most reliable.

After maturely reconsidering the subject, this court has reached the conclusion to follow the rule heretofore laid down and to hold that in each case the expectancy of life may be shown, as any other fact, by the best evidence obtainable, and that, as improved tables come into use which are of standard authority, they may be given in evidence, instead of the older tables which they supersede. Such tables show only the probable continuance of life, and not the duration of ability to earn money. They show the probable duration of life of healthy persons who are insurable risks, and the court, when requested, should tell the jury what the table shows, and that it is to be considered by them, in connection with the other proof in the case, for what it may be worth, considering the plaintiff's state of health and circumstances, in determining the probable duration of his capacity to earn money.

Current Medical Literature

AMERICAN.

Titles marked with an asterisk (*) are abstracted below.

American Medicine, Philadelphia.

January 13.

1 *Should the Youth of this Country Be Instructed in Sexual Physiology and Hygiene. P. A. Morrow, New York.
2 Medical Treatment of Abdominal Pain Not of Gastric Origin. J. E. Talley, Philadelphia.
3 *Case of Cerebellar Tumor. B. Chance, Philadelphia.
4 *Young Stage of the American Hookworm—Necator Americanus (Stiles, 1902) 8 to 12 Days After Skin Infection in Rabbits and Dogs. C. W. Stiles and J. Goldberger, Washington, D. C.
5 *Subcutaneous Pelvioureteral Lumbar Implantation in Lieu of Ureterectomy After Nephrectomy. A. E. Gallant, New York.
6 Deception and Falsehood as Pathologic Phenomena. A. Gordon, Philadelphia.

1. **Instruction in Sexual Physiology and Hygiene.**—Morrow says that the education of the public is the most valuable of all measures for the prevention of communicable diseases. Instruction in the physiology and hygiene of the sex function should form an essential, integral part of the education of youth. Morrow criticises our present educational system, the policy of which is to launch the young into the world in complete ignorance of everything pertaining to the laws of life reproduction. Morrow says that in seeking this knowledge the youth is but obeying a law of his mental evolution. Since this knowledge can not be obtained from legitimate sources—from parents and instructors—it is gained surreptitiously and usually from depraved sources—dissolute companions or erotic or quackish literature. To be salutary as a safeguard, therefore, this hygienic education should be given in youth, for it is during this period that the foundations of what may be termed the "sexual character" are laid and habits of mind and practices are formed which, in a great measure, determine the future sexual life of the individual.

3. **Cerebellar Tumor.**—The symptoms in the case reported by Chance were those of intracranial tumor of the hind-brain rather than of the more forward portions, and appeared to be those produced by irritation rather than by the destruction of the basilar centers. Although an intense papillitis, which was present, was conclusive of the presence of a tumor, the indefiniteness of the other symptoms hindered the assumption that the tumor occupied the cerebellar region. The chief local symptoms were those of deviation of the optic axes, with disturbances of direct and binocular vision, and facial palsy; yet, after energetic treatment the paresis of the left external rectus muscle, as well as the diplopia and the facial palsy, greatly disappeared, and when the man was placed under strict hospital regimen the general symptoms all but ceased, for there were no headaches, emesis, or muscular spasms, until the last course. The gait, station and the knee-jerks were not interfered with until very late in the progress of the malady. There was hyperexcitation of the sexual function almost until the end. The general bodily nutrition was maintained up to the last weeks of the man's life.

4. **Young Stage of American Hookworm.**—Stiles and Goldberger have succeeded in infecting dogs and rabbits with the American hookworm (*Necator americanus*) by placing the second larval stage of this worm on the skin of the back and guarding against any infection through the mouth. The young worms penetrated the skin, and in from eight to twelve days later they were found in the stomach and small intestine. They had undergone a third ecdysis and reached the fourth larval stage (with provisional buccal capsule). The authors state that there is at present no evidence that these hookworms would reach maturity in dogs and rabbits, hence the conclusion that dogs and rabbits play any rôle in spreading the disease to man is not justified by any facts known.

5. **Ureterectomy After Nephrectomy.**—According to Gallant, subcutaneous lumbar pelvioureteral implantation is simple, safe and satisfactory. He says that by this means we can avoid the additional risk of immediate ureterectomy. We can secure free drainage and maintain an opening through which drugs may be introduced to hasten retrograde changes. On the other hand, the opening beneath the skin does not prevent primary union; avoids exposure on the skin surface; should mucus or pus accumulate it can not burrow in the retrocolonic space, is easily recognized and let out through a small skin incision and a tube inserted for drainage; the absence of ligature on the ureter prevents deep inflammation, and if the ureter must for any reason be removed subsequently, this can be accomplished without difficulty, from a patient who has had ample time to recuperate from the primary operation. The presence of the drainage tube does not interfere with the patient getting out of bed at an early date after operation (in his case the tenth day), nor the exercise of her usual home duties. The drainage tube must be kept in place as long as the discharge continues, and should it close and secretion accumulate, the skin can be incised, and the drain reinserted until atrophy of the ureter is accomplished.

New York Medical Journal.

January 13.

7 Friedreich's Ataxia. W. Sinkler, Philadelphia.
8 Reflex Neuroses, with Special Reference to the Appendix Vermiformis. E. H. Grandin, New York.
9 *Uterine Inertia and Its Management. G. L. Brodhead, New York.
10 *Pathologic Physiology of Typhoid Fever. J. H. Barach, Pittsburgh.
11 Simple Instrument Useful in X-Raying a Stricture of the Esophagus. S. Chandler, Philadelphia.
12 Contribution to the Causation of Enchondroma of the Upper Portion of the Femur. C. O. Thienhaus, Milwaukee, Wis.
13 A Quarter Removed After 219 days in the Esophagus of a Child. J. J. Rectenwald, Pittsburg.
14 Physiology of Recreation. G. W. McCaskey, Ft. Wayne, Ind.
15 Gonorrheal Rheumatism. M. W. Ware, New York.

9. **Treatment of Postpartum Hemorrhage.**—Brodhead outlines his treatment of this condition as follows: As soon as the uterus has been emptied, ergot should be given by mouth, or, if the hemorrhage is alarming, by hypodermic injection, and massage of the uterus should be kept up vigorously. Usually a hot vaginal douche of normal salt or weak lysol solution, given at a temperature of 116 F. will be sufficient to check the bleeding. If not, the douche nozzle is carried up into the uterus and a uterine douche of the same solution at the same temperature is given. Hemorrhage continuing, he gives a hot uterine douche of a 2 per cent. solution of acetic acid. For this purpose he carries in his outfit a four-ounce bottle of the Squibb 80 per cent. acetic acid, two ounces of which added to three quarts of water will make a solution of requisite strength. If acetic acid fails, and there have been very few instances in his experience in which it has failed, the uterus should be tightly tamponed with plain sterile or a 5 per cent. iodoform gauze. If one is unprepared to pack the uterus a piece of ice may be carried up and rubbed about in the cavity of the uterus, a procedure which is occasionally followed by firm uterine contraction.

10. **Pathologic Physiology of Typhoid.**—Barach believes that the evidences of to-day are sufficient to establish the modern idea that typhoid fever is a disease dependent essentially on the bacteriemia. He thinks that the Peyer's patches and solitary follicles are not the sources from which typhoid bacilli are sent out into the circulation, but that their marked involvement is due to their peculiar histologic structure or to some physiologic relation that exists between the typhoid bacilli and the lymphoid elements. He also believes that perforation with the ordinary pyogenic infection, staphylococci and streptococci, is so much more dangerous than with the pathogenic infection, because to the latter there is already a partial immunity established, and that the diazo is a reaction to an end product, the result of rapid tissue destruction which is characteristic of all marked cases of typhoid fever, and of those other diseased conditions in which the reaction occurs.

Boston Medical and Surgical Journal.

January 11.

16 *Analysis of One Hundred and Twenty Cases of Malaria Occurring at Camp Gregg, Philippine Islands. W. P. Chamberlain, U. S. A.
17 *Report of Three Cases of Perforated Gastric Ulcer; Gastroenterostomy. D. F. Jones, Boston.
18 Shoes and Feet. R. Soutter, Boston.
19 Dazzling Health Statistics. T. J. Mays, Philadelphia.

16. **Malaria.**—Of the 120 cases of malaria reported by Chamberlain 24 are recurrences in the same individual. Of these

24 cases at least 4 were proved to be new infections by finding a type of plasmodia different from that demonstrated on the first entry. All these new infections and also 6 of the recurrences (probable relapses) occurred while the patients were on a compulsory course of treatment consisting of 0.5 gm. quinin sulphate in solution three times a week. This treatment had been in effect several weeks in each case when fever occurred. On December 11 the compulsory course was increased to 0.5 gm. four times a week, and since then there has been one relapse and one new infection among the men taking this treatment. Chamberlain is of the opinion that these cases prove that neither 1.5 gm. nor 2 gm. quinin sulphate a week is sufficient in all cases to prevent relapse or new infection. These 120 cases are classified as follows: Quartan intermittents, 3; benign tertians, 55, of which 28 were single infection intermittents, 23 were double infection intermittents (quotidian) and 4 were remittent or continued; malignant infections (estivo-autumnal), 62 cases, of which 24 were tertian intermittents, 16 were quotidian intermittents and 22 were remittents. In these 120 cases plasmodia were found in 113, the failure to find plasmodia in 7 being due to a lack of cover glasses during a portion of August. All those in which plasmodia were not found were typical benign tertian fevers. There was in the series one pernicious case. No cases of malarial cachexia developed. Typical parasites were found in all the quartan intermittent cases. The plasmodia were demonstrated in 48 of the 55 cases diagnosed as benign tertian fever, and in many of the cases of double infection the two crops of parasites were easily demonstrated in the blood. In the 62 cases of the estivo-autumnal infections the plasmodia were found in all. Crescents were found only twice, due to the fact that the patients were received promptly on appearance of first symptoms and were treated with quinin before the usual time necessary for development of crescents had elapsed. There were 24 cases of malignant (estivo-autumnal) tertian fever so classified on clinical grounds. There were 16 cases of malignant (estivo-autumnal) quotidian fevers, and 22 cases of malignant (estivo-autumnal) remittent or continued fevers, 2 having tertian paroxysms, 13 quotidian and 7 showing no characteristic periodicity in the febrile reaction. None of these cases continued over a week. Estivo-autumnal plasmodia were demonstrated in all. Nausea and vomiting were marked and annoying symptoms. Out of the 62 cases nausea occurred in 38, and vomiting in 23. These symptoms in most cases were confined to the period of marked febrile reaction. Diarrhea was noted in 7 cases. Abdominal pain, in most cases associated with tenderness on palpation, was recorded in 18 cases. Forty-seven patients complained of headache, and 41 of more or less generalized pain in the back and limbs. Cough was present in 11 cases, and herpes on the lips in 3. Urticaria occurring at the time of paroxysms and ephemeral was noted in 2 cases. No case with infection by two types of plasmodia was detected and no cases resisting quinin and resembling typhoid were observed. The urine was examined in the entire series of cases. Albuminuria was not noted in any case. The treatment employed in these cases consisted of rest in bed, liquid diet and in most cases a cathartic, usually calomel followed by magnesium sulphate, was a routine treatment. When quinin was administered it was given in doses of 0.5 gm. in solution four times daily during the stay in hospital, unless this was unduly prolonged by some pathologic condition other than the malaria. On leaving the hospital each patient was required to take the following course of quinin sulphate treatment: For two weeks 0.5 gm. twice daily, at the end of which 0.5 gm. three times weekly was given for two months. At the end of two months 0.5 gm. daily was given for a week. Quinin was given in solution, except when it caused nausea and vomiting, in which case capsules or tablets were substituted. The action of quinin has been found efficient and prompt in all cases. Arsenic was given in addition to quinin in a few of the recurrent cases.

17. **Perforating Gastric Ulcer.**—The points of interest in the 3 cases reported by Jones are as follows: All cases were perforations of chronic ulcers, the history of ulcer varying from one and one-half to ten years. The perforation occurred in the midst of a large indurated and thickened area which made it impossible to close the perforation by sutures with any degree of security. In 2 cases the ulcers were located about an inch from the pylorus, directly on the lesser curvature, while in one case it was about three inches from the pylorus and one and one-half inches below the lesser curvature. The time which elapsed between the time of complete perforation and operation was respectively eight hours, seventeen hours and one hour. A gastroenterostomy was done in all three cases; in one case with the Murphy button and in two cases by simple suture. These two patients made a complete recovery. The patient in whom the Murphy button was used died as the result of two more perforations, which Jones believes were caused by the presence of the button. He says that he will never again use the button in such an operation.

Medical Record, New York.[1]

January 13.

20 *Observations on Nephroptosis and Nephropexy. A. Sturmdorf, New York.
21 *Rôle of Saline Solution in the Treatment of Pneumonia. J. M. Taylor, Philadelphia.
22 An Inquiry into the Scientific Principles Which Underlie the Milk Feeding of Infants. T. S. Southworth, New York.
23 *Obstruction of the Pylorus. R. H. Halsey, New York.
24 Clinical Aspect of Rheumatic Endocarditis. J. D. Morgan, Washington, D. C.
25 *Non-Operative Method of Treating Prostatitis. W. B. Snow, New York.
26 *New Method of Treatment of Acne. E. Moschcowitz, New York.

20. **Nephroptosis and Nephropexy.**—During the past nineteen years Sturmdorf saw 112 cases of nephroptosis, and among these 83 patients were operated on, all in the course of the last six years. In this series no mortality and three accidents were encountered; an injury to an abnormally attached, accessory renal pelvis, and two instances of urinary fistulæ, resulting from superficial parenchymatous lesions produced in the packing of a very adherent friable capsule.

21. **Role of Saline Solution in Pneumonia.**—Taylor says that saline solution, used early, preserves the blood's normal fluidity, renders normal osmosis possible, and gives free sway to the immunizing process. He urges that delay in the use of the salines is just as dangerous as delay in administering antitoxin in a case of diphtheria; and, moreover, that the blood in infections suffers such rapid depletion of saline elements, the effect of which is to impair the efficiency, and finally to arrest the protective functions of, the organism, that this constitutes one of the most active causes of death. The practical recommendation is to begin the internal use of saline solutions, especially those containing sodium chlorid and the other saline constituents of the blood, from the outset in pneumonia and other infectious fevers.

23. **Obstruction of Pylorus.**—Halsey reports seven cases of pyloric obstruction, of which four were benign and three malignant. Six patients were operated on, five of the operations being gastroenterostomies. Of three benign cases in which operation was done only one was suitable for pyloroplasty. Only in one instance of the seven was permanent relief afforded by medical treatment. The author's conclusions are as follows: 1. A history of digestive disturbance extending over several years accompanies the non-malignant conditions; while a perfect euphoria, followed by a few months of increasing difficulty, is associated with the malignant cases. 2. A stomach distended with food contents and in active peristalsis, has an obstruction at the outlet, whether a tumor can be felt or not. 3. An obstruction of the pylorus may be due to a tumor which can be felt in another than the right upper quadrant. 4. The presence of lactic acid and the Oppler-Boas bacillus must not be interpreted to indicate the presence of a cancer; nor, on the other hand, does the finding of free hydrochloric acid and sarcinæ contraindicate malignant disease. 5. Retention of food in the stomach can cause a suppression of the secretion of hydrochloric acid and permit the formation of lactic acid and the growth of Oppler-Boas bacilli. 6. The selection of treatment should depend on the probable cause, as relief can be obtained in some cases without operation. In selecting the operation, pyloroplasty should have the preference when a choice is possible.

25. **Non-Operative Method of Treating Prostatitis.**—Snow

has treated about forty cases of prostatitis in patients of different ages by means of the static wave current and vacuum tubes. In no case has there been failure to produce some degree of improvement, and in 75 per cent. of the cases so treated there has been complete relief from the symptoms and a cessation of the disposition to relapse. The technic of the method is described and several especial electrodes devised by the author are shown in illustrations. He attributes the effect of the treatment mainly to the mechanical contraction produced and arrives at the following conclusions: 1. When simple congestion is present in the early stages of the affection the relief is prompt. 2. When the gland has been enlarged for a number of years with resulting infiltration and development of vesical irritation and obstruction of the urethral passage, the lesion is capable of being abated and the congestion relieved with the absorption of infiltrated exudates, the hyperplastic tissue only remaining. 3. In the aged, in whom the gland has become greatly enlarged, and is dense and hard from the growth of hyperplastic fibroid tissue, the inflammatory process will be abated, affording a degree of relief to the obstruction commensurate with the site and extent of the inflammatory process. The dilatation of the bladder which has intervened may be greatly relieved and cured in most cases, he states, by the persistent application of the electrical current over the pubis and by an electrode carried high into the rectum and pressed forward against the bladder, together with judicious washing of the bladder and the use of strychnin. The current applied in this manner induces temporarily contraction of the muscular coats, and finally restores sufficient tone to enable the organ completely to empty itself.

26. **New Treatment of Acne.**—Moschcowitz has applied Biers' principle of hyperemia to the treatment of acne and reports very good results. The procedure consists in the application of dry cups to the affected region for one-half hour, once or twice a day. The suction must be very slight and the cup is removed and reapplied every one or two minutes. It takes from two to five sessions for each area to effect the desired result. The method does not prevent the appearance of new pustules, although they become less frequent. Eight patients were treated by this method alone with satisfactory improvement.

St. Louis Medical Review.

January 6.

27 Colliery and Mill Explosions: "Fire-Damp" Falsely Accused. J. Knott, Dublin, Ireland.
28 Sapremia. W. F. Waugh, Chicago.

Lancet-Clinic, Cincinnati.

January 13.

29 *Autointoxication. D. L. Field, Jeffersonville, Ind.
30 *Antiquity and Fallacy of Animal Extract Therapy. W. G. M'Fadden, Shelbyville, Ind.
31 *Tonic Alterative Action of Copper and Arsenic in Primary and Secondary Spanemic Cases. G. F. Butler, Chicago.

29.—See abstract in THE JOURNAL, Nov. 4, 1905, page 1436.

30. **Antiquity and Fallacy of Animal Extract Therapy.**—McFadden sums up his article as follows:

This theory, as I have shown, is in harmony with the therapeutics of the sixteenth century, which recommended that the extracts from the various organs and glands be administered for diseases of corresponding parts. Between so much faith, and so little, where do we stand? The profession is constantly deluded by those who claim to enlighten us by their carefully prepared statements regarding the clinical and physiologic action of these animal extracts. This makes it more and more incumbent on the intelligent and thinking physician, who is familiar with the history of his profession, ancient, medieval and modern, to limit his prescriptions to the scientific materia medica, of which he is supposed to possess valuable and definite information, and thus great good may finally result from studying this fantastic and superstitious practice, for which in this paper we have found champions, both in ancient and modern therapeutics.

31.—THE JOURNAL, Nov. 4, 1905, page 1436.

Annals of Surgery, Philadelphia.

December.

31½ *Operative Treatment of Tumors of the Bladder. F. S. Watson, Boston.
32 Sarcoma of the Bladder. C. G. Darling, Ann Arbor, Mich.
33 Rupture of the Male Urinary Bladder. O. Horwitz, Philadelphia.
34 Intraperitoneal Rupture of the Urinary Bladder. J. R. Cook, Fairmont, W. Va.
35 Roentgen Method in Lithiasis of the Urinary Tract. C. Beck, New York.
36 *Destroying the Urogenital Diaphragm or Pelvic Floor as a Means of Relieving Prostatic Ischuria. A New Operation. E. W. Andrews, Chicago.
37 *Prostatic and Periprostatic Abscess. S. Alexander, New York.
37½ Case of an Hermaphrodite. D. P. Allen, Cleveland, Ohio.
38 *Law Accelerating Risk in Cancer. E. W. Andrews, Chicago.
39 Use of X-Rays in Carcinoma. W. A. Pusey, Chicago.
40 Brown Atrophy of the Heart as a Result of Cholecystitis and as a Complication of Cholecystectomy. B. Holmes, Chicago.

31½. **Operative Treatment of Bladder Tumors.**—Watson proposes to substitute bilateral lumbar nephrotomy and the establishment of renal fistulæ in cases of bladder tumor for ureteral implantation in connection with bladder resection or total extirpation, and suggests that the bladder operation be done after an interval and not together with the nephrotomies.

36. **New Operation for Relief of Prostatic Ischuria.**—Andrews describes the modification of an operation devised by him in 1902. The operation may be called a prostatolysis or displacement of the organ from between the jaws of the pubic rami to a looser position behind and below. This involves the practical destruction of the urogenital diaphragm to the extent that it no longer forms a transverse musculo-ligamentous septum or floor holding and compressing against the bone, the neck of bladder, and the prostatic urethra. Andrews has devised a large opening made by first pushing up the testes and holding them out of the scrotum with a truss or binder, and then cutting the skin and fat in a curved flap corresponding with the pubic arch. The apex of this flap is the pendulous portion of the penis. When traction is made the opening becomes diamond shaped and shows the following structures from the symphysis backward: (1) A space of fat about one-half inch wide; (2) the ligaments attaching the penis to the pubis, and the prostato-pubic ligaments between which pass (3) the crura of the corpora spongiosa of each side; (4) a large vein, the dorsal vein of the penis, with two smaller arteries and two nerves. The fibers of the levator ani muscle, embracing the prostate and the inner surface of the obturator internus, come forward in the lateral part of the field, and the deep fascia fills the whole space with a strong covering, which must be cut away in front before one gets inside the pelvic floor. The internal pubic artery, and particularly a large branch to the bulb, must be avoided in doing this. After pushing aside the vessels here encountered and dividing the pubic ligament of the penis, the cutting off of the deep fascia and part of the levator ani allows the membranous urethra and prostate to be pulled into view by traction on the penis. The pubo-prostatic ligaments are now in plain view, and are made tense by traction. They appear to be about 1.5 or a centimeter long, and if they are both divided the prostate will come still further into view. This partial destruction of the pelvic floor is permanent, and is of great value in preventing further compression of the prostatic urethra by the grasp of the levator ani. It also makes the bladder prolapse a little, so that there is no longer a retroprostatic pouch, but the orifice of the urethra becomes the lowest point. Andrews advises cutting the pelvic diaphragm supporting the prostate along both lateral borders. As soon as this is done the whole mass, including prostate and neck of bladder falls freely backward and downward, almost as if it were herniating into a new position. As this is the aim of the operation it need cause no anxiety. After the finger has made a small opening through the urogenital diaphragm its ligamentous and muscular fibers can be held close to this plane. From the operator's standpoint it is much as if he were doing a hysterectomy and had the broad ligament in his grasp. Andrews found that a rapid and bloodless way of making the section is by applying broad ligament forceps, cutting between them and the prostate, and then using hemostatic sutures on the stumps. The operation of prostatolysis is complete when the side attachments of the prostate are divided. The wound is closed with only small capillary drains in the corners. The testes easily find their way into the loose dartos again. Little reaction or shock follows this operation, and there is scarcely any danger of injuring bladder, rectum or urethra in doing it.

37. **Prostatic and Periprostatic Abscess.**—Alexander treats all forms of prostatic abscess by opening them into the prostatic urethra through a median perineal incision, whether the

pus is confined within the capsule or has extended outside the capsule, whether it is above the triangular ligament or has extended into the perineum or into the ischiorectal fossa. He is convinced that this operation is sound in principle, and that abscesses thus treated heal promptly and with less danger to the patient than by any other method. The technic of the operation is as follows: The patient is placed in the lateral lithotomy position; the membranous urethra is opened on a staff; the prostatic urethra is dilated and explored by the finger; a finger of the other hand is passed into the rectum, and between the two fingers the extent of the abscess cavity can be defined. The abscess is opened by tearing with the finger through the mucous membrane; its cavity is explored, any fibrous bands which traverse it are broken down, its floor is made level with the floor of the urethra, and the opening in the urethral wall is enlarged sufficiently to insure thorough drainage. This is done entirely with the finger; to do it efficiently requires experience; rough and unskillful manipulation may cause severe hemorrhage. A catheter, No. 28 or 30 F, is introduced through the perineal wound into the bladder, and is retained by tapes fastened to a waistband. One or two strips of gauze are passed alongside of the tube to the edge of the abscess cavity, but the latter is not packed. The tube and gauze are removed on the third day, sometimes on the second. The wound is then treated as a perineal section. The patient passes all urine through the urethra before the end of the second week; the perineal wound is healed at the end of the third or fourth week. Some patients require treatment of the posterior urethra for a short time after the complete closure of the perineal wound. In cases of periprostatic abscess in which the pus is above the triangular ligament, the abscess cavity is opened and explored by the finger through the perineal incision; this is possible provided the floor of the membranous urethra is thoroughly cut to the apex of the prostate so as to divide the lower border of the triangular ligament. A large abscess between the rectum and the prostate is to be drained by a strip of gauze passed into the cavity alongside of the perineal tube; this is removed at the end of twenty-four or forty-eight hours. When the abscess has extended into the ischiorectal fossa, an additional incision is necessary to drain this space. Perineal abscess beginning in or about Littre's or Cowper's glands or the intrabulbar glands should be similarly treated.

38. **Law of Accelerating Risk in Cancer.**—According to Andrews, the risk of recurrence in malignant growths increases as the square of the time of growth; or, conversely, the risk of recurrence diminishes in the ratio of the square root of the time after incidence. Thus, doubling the time increases the risk of recurrence or metastasis fourfold; tripling the time increases the risk ninefold, etc. The law thus stated, says Andrews, is an admonishment that an early golden period is always given for saving the life of the cancer victim, and imperatively commands action during the brief and precious stage. Andrews maps out a working formula, which, when applied clinically, will determine certain limits beyond which it is useless to operate for a radical extirpation. He calls this the "risk curve." The "risk curve," expressing mathematically the life chances of the patient, is a function of two variable elements—the rate of increase and the total age of the disease. The method of making the curve is described in detail. Andrews has tested his method in a large number of cases, and a few by way of prophecy, and has every faith in its accuracy. By means of this curve he has found it possible to exclude, with fair accuracy, all those cases in which operation ought not to be performed.

Iowa Medical Journal, Des Moines.

December.

41 *Appendicitis as Treated by Ochsner. L. W. Littig, Iowa City.
42 Compression of the Abdominal Aorta in Postpartum Hemorrhage. C. Jonsson, Clinton.
43 The Inevitable Conflict. G. P. Neal, Ft. Madison.
44 Dorsal View of the Ureter. B. Robinson, Chicago.
45 A Plea for the More Frequent Resort to the Operative Treatment of Hernia. Q. C. Fuller, Milford.

41. **Ochsner Treatment of Appendicitis.**—Littig contends that the Ochsner plan of treating certain cases of appendicitis can not supplant the operative treatment, although, according to Ochsner, it can so modify a spreading or a septic peritonitis that the mortality will be very small after operation. Littig says that it is here that the non-operating man has sinned. He has applied the Ochsner plan to all cases, whether with spreading infection or not. By his delay he has vastly increased the number of spreading cases. Littig claims that by operating at once, the spreading of septic cases will not be seen; that the Ochsner plan does not apply to more than 0.1 per cent. of all cases during the first twenty-four hours and to not more than 0.2 per cent. during the second twenty-four hours. He believes that operation by a competent surgeon, done as soon as the diagnosis is made, is the only rational treatment for appendicitis.

Virginia Medical Semi-Monthly, Richmond.

December 22.

46 Infantile Diarrhea. C. S. Webb, Bowling Green, Va.
47 Pulse-Tension, Arteriosclerosis and Nephritis, in Several Aspects. W. S. Gordon, Richmond.
48 Bubonic Plague. T. R. Marshall, Manila, P. I.
49 The American Health Officer. E. A. Timmons, Columbia, Tenn.
50 *New and Most Efficacious Method for Removing Faucial Tonsils. C. R. DuFour, Washington, D. C.

50. **Tonsillotomy.**—DuFour believes that the proper method of removing the faucial tonsils, whether enlarged or not, is to enucleate them. In the case of children he gives an anesthetic, inserts a mouth gag, and with proper instruments loosens the tonsil from any attachments to the pillars; then, with a tenaculum or forceps he pulls the tonsil well out of its bed, slips the wire of a snare made for the purpose over it, well down to the base, and then with one stroke enucleates the tonsil. The after treatment consists in spraying the throat with an antiseptic, keeping the patient in the house for several days, and giving soft, nourishing food. The shock of the operation is said to be slight and recovery rapid.

Brooklyn Medical Journal, New York.

December.

51 *Rapid Correction of Lateral Curvature of the Spine. W. Truslow, New York.
52 Perforation of the Gall Bladder. R. S. Fowler, Brooklyn.
53 Clinical Review of Some Recent Cases of Tubal Pregnancy. S. J. McNamara, New York.
54 Report of the Committee Appointed by the Council of the Medical Society of the County of Kings to Prosecute Illegal Practitioners of Medicine.

51. **More Rapid Correction of Scoliosis.**—In order to accomplish greater correction of the deformity Truslow substitutes the horizontal for the vertical position when applying the jacket. His method is described in detail. He concludes that systematic physical training is the main therapeutic agent in the correction of lateral curvature of the spine, and that structural changes can not be overcome by muscular efforts alone. Plaster-of-Paris jackets, applied under conditions of progressive longitudinal and lateral traction and frequently renewed, will rapidly overcome muscular contraction. They also may be advantageously employed in suitable cases of moderate severity, but the treatment must be promptly followed by the use of a brace and vigorous physical training.

American Journal of Urology, New York.

December.

55 Treatment of Tumors of the Bladder. D. Wallace.
56 *Results of Internal Urethrotomy with Bazy's Measuring Urethrotome. F. Joly, Paris.
57 Renal Neoplasms Originating from Aberrant Suprarenal Tissue Germs. F. Peuckert.

56. **Internal Urethrotomy with Bazy's Urethrotome.**—Joly reports the results obtained with this instrument in the treatment of 42 cases. He says that the principal reproach that may be made against the various urethrotomies in general is the impossibility or difficulty of exactly measuring the stricture and consequently the risk that one runs of cutting the healthy portions of the urethra. With Bazy's instrument the seat, length, caliber and number of strictures can be determined exactly. Bazy's urethrotome, contrary to that of Maisonneuve, will only cut the stenosed tissues and will respect the healthy parts. No hemorrhage occurs, although three incisions are made, because fibrous tissue alone is cut. It allows one to introduce a sound of quite large caliber, generally No. 16 Charière, and in almost all the patients operated on the increase in caliber of the urethra obtained has been quite sufficient without any danger of recurrence.

Ohio State Medical Journal, Columbus.

November 15.

58 *Gastric Features of One Hundred and Fifty Cases of Pulmonary Tuberculosis. L. A. Levison, Toledo.
59 Infection of the Gall Bladder in Typhoid Fever. S. P. Kramer, Cincinnati.
60 *A New Truss for Umbilical Hernia. S. W. Kelley, Cleveland.
61 The General Practitioner. A. B. Swisher, Marysville.
62 Contract Practice. J. F. Fitzsimmons, Bucyrus.
63 *Operation for the Radical Cure of Large Inguinal Hernia. J. U. Barnhill, Columbus.
64 Senile Atony of the Bladder. C. M. Harpster, Toledo.

58. **The Stomach of Pulmonary Tuberculosis.**—Of the 150 cases considered by Levison, 113 were males and 37 were females. In 32 cases (21.3 per cent.) there was a history of gastric trouble at some time or another, previous to the appearance of the pulmonary affection. Twenty-seven of these patients had gastric symptoms after the pulmonary condition appeared. In 112 of the cases (74.6 per cent.) some form of stomach trouble was present at some stage of the disease. Thus in 85 cases the gastric symptoms followed the pulmonary one. This, says Levison, shows that pulmonary tuberculosis markedly predisposes toward gastric trouble. Vomiting was the symptom in 78 cases. In most of these cases it was the direct result of nausea, after eating. In a number of instances, however, it had no relation to food injection. In a few instances the vomiting seemed to have a neurotic origin. Diarrhea was present in 48 cases.

60. **New Truss for Umbilical Hernia.**—Kelley describes his truss as follows: It is a pad or plate made of any smooth, impervious material, with little buttons or pegs on the back of it to which are buttoned the ends of the adhesive straps. They can be made of any shape and of different sizes, and the number of buttons or pegs is not an essential point. There should be at least two and, if not more than two, they should be placed vertically with reference to the body. The square shape with rounded corners, and about two and one-quarter inches across, with four buttons, is most convenient. A couple of inches of one end of each adhesive strap is folded on itself and this folded again, and once again, so that there are four thicknesses of plaster stregthening the end. Through this a buttonhole a half-inch from the end is cut with a penknife. The folded end prevents the plaster from adhering to the skin near the pad. The straps are buttoned on to the pad and adjusted round the body. The straps can be unbuttoned and the pad removed at any time, the skin cleansed and powdered, and the pad washed and replaced with the greatest convenience and without removing the plaster from the skin. All portions of the skin that are to be covered either with pad or plaster should be washed thoroughly and antiseptically, then the face of the plaster passed over the flame of an alcohol lamp before being applied, and then this hard rubber truss pad used; the strapping can be left on for weeks together and the mother or nurse can do the rest.

63. **New Operation for Inguinal Hernia.**—In Barnhill's operation the skin and superficial fascia are divided from the spine of the pubis slightly beyond the internal abdominal ring. The external oblique aponeurosis is then divided to about the same point, leaving the lower flap of fairly good width. The sac is then carefully separated from the cord, opened to free it of intestine, transfixed, ligated high up and excised, when it will retract through the internal ring. If there are varicose veins in the spermatic cord the largest are ligated and excised. The cord being held up out of the way, the transversalis fascia and internal oblique, including the conjoined tendon, are then stitched to the shelving portion of Poupart's ligament, two stitches being placed in the internal oblique muscle above the opening for the passage of the cord to gather up the muscle and fascia, with a view of obliterating the inguinal fossa, care being taken to bring the cord well down to the lower border of the internal oblique, thus giving it considerable obliquity in passing beneath these muscles. Mattress sutures are then passed through the lower flap close to Poupart's ligament—that is, in the lower portion of the outer flap—catching the margin of the internal oblique and its fascia and the lower margin of the upper or internal flap. Three such mattress sutures are placed in the upper part of the incision over the muscle and cord, the other four being passed beneath the cord. A small incision, sufficient to make an opening large enough for the passage of the cord, is made in each flap; in the upper one at a point a half-inch below that at which the cord passes out through the internal oblique, and the one in the lower flap at the junction of its lower and middle third. The mattress sutures are then tied and the cord passed through the opening in the upper flap. The lower flap is then carried upward over the cord and stitched to the upper flap above the cord, except the lower third, which is passed beneath the cord and stitched in like manner. Both layers of the superficial fascia are then approximated and the wound closed with a subcuticular silkworm-gut suture.

New Orleans Medical and Surgical Journal.

December.

65 *The Kidneys and the Tongue in Yellow Fever. E. M. Dupaquier, New Orleans.
66 Typhoid Fever in Country Practice. B. O. LeBlanc, St. Gabriel, La.
67 Tetanus Statistics. J. D. Bloom, New Orleans.
68 Septic Awakening by Chloroform General Anesthesia. J. D. Bloom, New Orleans.
69 Talk on X-Rays, with Illustrations. N. F. Thiberge, New Orleans.

65. **The Kidneys and the Tongue in Yellow Fever.**—Dupaquier says that the tongue of the yellow fever patient is red and raw looking, having a glazed surface studded with enlarged papillæ; it resembles the so-called strawberry tongue of severe scarlatinal toxemia. He has observed this tongue on the fourth day in yellow fever, and has observed that it is of grave prognostic importance. He depends on this sign of the tongue as an index of a severe yellow fever toxemia, which will eventually either tell on the kidneys or on the nervous system to the extent of annihilation.

Journal of Medical Society of New Jersey, Newark.

December.

70 What the Osteopaths Demand—How Shall the Medical Profession Regard Them? P. Marvel, Atlantic City, N. J.
71 *Uses of Adrenalin in the Peritoneal Cavity. E. Marvel, Atlantic City, N. J.
72 Study of the Present Epidemic of Cerebrospinal Meningitis. F. W. Pinneo, Newark.

71. **Adrenalin in the Peritoneal Cavity.**—According to Marvel, adrenalin can be used safely in the peritoneal cavity. When shock or depression exists, while the peritoneum is open, it offers the most convenient and as effectual a means as intravenous infusion for combatting these conditions. It controls peritoneal oozing, prevents the formation of peritoneal adhesions, and lessens the number of those reforming.

Quarterly Journal of Inebriety, Hartford, Conn.

October.

73 Memorial Address on the Life and Work of Dr. Norman Kerr. T. D. Crothers, Hartford.
74 *Minor or Border-line Psychoses of Alcoholism. F. P. Norbury, Jacksonville, Ills.
75 Wines and the Poets—A Critical Study of the Poet's Devotion to the God of Wine. J. Madden, Milwaukee, Wis.
76 Use of Hypnotic Drugs in the Treatment of Insomnia. W. M. Smith, Wakefield, Eng.

74.—This article appeared in THE JOURNAL, March 18, 1905, page 865.

Cleveland Medical Journal.

November.

77 Truth Without the Poetry, Concerning Uric Acid. J. J. R. Macleod, Cleveland.
78 Remarks on Thyroidectomy. C. A. Hamann, Cleveland.
79 Retardation in the Growth of Limbs, Due to Trophic Disturbances. W. G. Stern, Cleveland.
80 An Effective Method of School Room Lighting. L. K. Baker.

Wisconsin Medical Journal, Milwaukee.

December.

81 Etiology of Appendicitis. R. H. Jackson, Madison.
82 Early Diagnosis of Consumption. R. J. C. Strong, Beloit.
83 *Arteriosclerosis. L. A. Potter, Superior.
84 Necessity for the Annual Systematic Examination of School Children's Eyes, Ears, Noses and Throats by School Teachers. J. P. McMahon, Union Grove.
85 Convalescence. J. H. Voje, Oconomowoc.

83.—See abstract in THE JOURNAL, July 1, 1905, page 67.

Pennsylvania Medical Journal, Athens.

December.

86 *Address in Hygiene and State Medicine. G. W. Wagoner, Johnstown.
87 Chronic Rheumatism. C. F. Painter, Boston.
88 Three Cases of Meningocele with Recovery. G. W. Guthrie, Wilkesbarre.
89 Diagnosis of Acute Hemorrhagic Pancreatitis. J. C. Wilson, Philadelphia.
90 *Wandering Gallstones. W. L. Estes, South Bethlehem.

91 *Surgery of the Gall Bladder and Ducts. J. M. Baldy, Philadelphia.
92 Observations on Cholelithiasis. A. C. Wood, Philadelphia.
93 *Case of Malignant Lymphoma (Lymphosarcoma) with Autopsy, and a Brief Consideration of Splenic Anemia. J. A. Lichty, Pittsburg.
94 *Color Comparisons in Medicine. H. E. Wetherill, Philadelphia.
95 Protective Inoculations Against Bacterial Diseases. D. H. Bergey, Philadelphia.

86, 87, 93 and 94. **Id.**—Oct. 28, 1905, pages 1349 and 1350.

90 and 91. **Id.**—Nov. 4, 1905, page 1438.

Ohio State Medical Journal, Columbus.

December.

96 Relation of Ophthalmology to General Medicine. T. R. Pooley, New York.
97 Surgical Treatment of Paralytic Deformities. W. G. Stern, Cleveland.
98 Social Status of Tuberculous Persons. W. W. Pennell, Mt. Vernon.
99 Treatment of Cerebrospinal Meningitis. A. E. H. Maerker, Napoleon.
100 Ectopic Gestation. W. A. Melick, Zanesville.
101 Co-operative Sanitation. H. E. Handerson, Cleveland.
102 Case of Rabies; Statutes Regarding this Disease. A. S. Barnes, Botkins.

Bulletin Johns Hopkins Hospital, Baltimore.

December.

103 Contributions of Pharmacology to Physiology. Herter Lecture. H. Meyer.
104 Cardiograms Obtained from a Case of Operative Defect in the Chest Wall. J. Erlanger, Baltimore.
105 Fibroma of the Abdominal Wall; Primary Carcinoma of the Right Fallopian Tube; an Accessory and Twisted Omentum. T. S. Cullen, Baltimore.
106 Sarcoma of the Eye, Involving Chiefly the Ciliary Body. P. G. Woolley, Manila, P. I.
107 Renal Decapsulation in Nephritis. H. Harris, San Francisco.
108 Dr. Charles Frederick Wiesenthal's Medical Reports. E. F. Cordell, Baltimore.

California State Journal of Medicine, San Francisco.

December.

109 Medical Laws and the Influences that Mold Them. S. D. Van Meter, Denver.
110 Theory of Disinfection. A. E. Taylor.
111 Methods Employed in the Eradication of an Infectious Disease in the Chinese Quarter of San Francisco. W. C. Hassler, San Francisco.
112 Medical Treatment of Diseases of the Gall Bladder and Ducts. A. H. Mays, Sausalito.
113 Stitch-Hole Abscess. J. H. Barbat, San Francisco.
114 Extrauterine Pregnancy. R. A. Whiffen, San Jose.
115 Uterine Fibroids Complicating Labor. F. R. Horel, Arcata.

Texas State Journal of Medicine, Fort Worth.

December.

116 Review of State Health Departments and a Plea for a State Board of Health for Texas. A. Woldert, Tyler.
117 Value of Antistreptococcus Serum in Streptococcic Infection of the Lung. I. P. Sessions, Rockdale.
118 Operations for Retrodisplacements. J. M. Inge, Denton.
119 Importance of Staining the Malarial Parasite. Z. T. Lillard, Houghton.
120 Modern Aspects of Neurasthenia and Its Treatment. J. Punton, Kansas City, Mo.
121 Psychology as a Factor in Medicine. M. Duggan, Eagle Pass.
122 Surgical Treatment of Recurring Iritis. G. P. Hall, Houghton.
123 Surgical Treatment of Retrodisplacement of the Uterus. B. Saunders, Ft. Worth.
124 Parable No. 4, from the Book of Ethics. T. Esculapius.
125 Use of Milk Preservatives. W. S. Carter, Galveston.

FOREIGN.

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

British Medical Journal.

December 30.

1 *Preliminary Inquiry into the Tonicity of the Muscle Fibers of the Heart. J. Mackenzie.
2 Inebriety as a Physical Disease. H. W. Mann.
3 *Peculiar Form of Acromegaly, Possibly Resulting from Injury. J. C. P. Perry.
4 Addison's Disease. W. Tibbles.
5 The Parathyroids in Grave's Disease. S. G. Shattock.
6 The Pathogenic Ticks Concerned in the Distribution of Disease in Man. R. Newstead.
7 *The Ethics of a Prescription. G. A. Batchelor.
8 *A Case of Pneumothorax. J. McKie.

1. Tonicity of the Heart Muscle.—Mackenzie says that in considering the causes of dilatation of the chambers of the heart one can not fail to be struck with the inadequacy of the explanation usually given for this condition. That neither the difficulty opposed to a chamber during its emptying nor the distending force during its diastole is the cause of the dilatation, becomes evident when the conditions observed in certain hearts are carefully studied. The wall of the left ventricle may be so thinned that it bursts in its efforts to overcome the aortic pressure, and yet the walls show no signs of dilatation. On the other hand, dilatation of the left ventricle may occur even when the diastolic force filling the ventricle is greatly diminished, as in cases of pure mitral stenosis. As the permanent lengthening of the skeletal muscles is due to lack of tone, and as the lengthening of the muscle fibers of the heart is the immediate cause of the dilatation, and, therefore, comparable to the lengthened skeletal muscle, Mackenzie believes that the cause of dilatation will in all likelihood be found to be due to depression in the function of tonicity. He also believes that the causation of the functional murmur at the mitral and tricuspid orifices may be explained as due to a depression of tonicity affecting the muscle fibers forming the auriculo-ventricular ring. He says that anyone who carefully studies the condition of the heart associated with these murmurs can not but be impressed with the fact that they are frequently met in cases that show little or no enlargement of the heart. As, on the other hand, one meets with cases of considerable dilatation without these murmurs, Mackenzie thinks it justifiable to assume that the tonicity of the muscle fibers forming the auriculo-ventricular ring may be differently affected from that of the muscle fibers forming the wall of the ventricle.

3. Peculiar Form of Acromegaly.—Perry's case is of interest because the patient presented merely a local enlargement of the extremities. There was no pain, no nervous irritability, no headache, and no progressive loss of sight and muscular strength. The facial aspect was not characteristic of the disease. There was no enlargement of the thyroid gland. The patient, aged 20, gave a history of having fallen from a tree in his early youth, fracturing the frontal bone. Perry thinks that this fracture may have had some bearing on the local condition either by reflexly damaging the pituitary body or by causing some obscure changes in its growth.

7. Ethics of a Prescription.—Batchelor suggests that in order to protect physicians professionally and commercially, and their patients medically, and to conduce to the fulfillment of the ethical requirements of a prescription, each prescription should be headed by the patient's name and address, and that the prescription should be signed by the writer with his ordinary signature, instead of, as now, merely by initials in such hieroglyphic form that it is only decipherable by himself. The prescriber's address should be given, and it should be stated for how long or for what quantity the prescription is to be made up, and that it should only be available for such time and quantity, and for the person for whom it is written, and that after the prescription has fulfilled the instructions of the writer it shall be dead.

8. Pneumothorax.—McKie reports a case of pneumothorax involving the entire left side and accompanied by no symptoms other than an initial pain. The onset was sudden, without previous manifestation of disease or ill-health. The patient recovered completely.

The Lancet, London.

December 30.

9 Some Clinical Aspects of Pneumonia. D. W. C. Hood.
10 *Medical Treatment of Uterine Fibroids and Its Limitations. T. Wilson.
11 *A Case of Acute Hemorrhagic Pancreatitis. H. V. Munster.
12 Consideration of the Cholera, Yellow Fever and Plague Regulations and Aliens Act, 1905, in Their Relation to the Prevention of the Spread of these Diseases. D. Forbes.
13 Four Cases of Hysterectomy. S. Keith.
14 Case of Melena Neonatorum; Recovery. E. F. Heap.

10. Medical Treatment of Uterine Fibroids.—Wilson states that although uterine fibroids are extremely common, only a small proportion of them give rise to symptoms. In 30 per cent. of those that do the consequences are so serious as to demand operative treatment. Of the other 70 per cent., some with no active symptoms merely require watching, while the others call, in addition, for medical treatment, under which heading may be included minor surgical and other local means. Medical treatment may be direct or symptomatic. The direct or absorptive treatment does not promise much advantage, especially if one bears in mind the many sources of fallacy that interfere with a correct appreciation of the results of treatment. Symptomatic treatment is successful in many cases in tiding the patient over a crisis and in obviating the necessity for operation. Bleeding is most often successfully

treated by rest, ergot, and the intrauterine application of iodin. Pain requires treatment adapted to its cause; alcohol or morphin should only be administered in temporary and exceptional circumstances. The general condition of the patient, and especially the state of general nutrition and the cardiac and renal functions, should be carefully watched. Finally, operation should be recommended when bleeding gives rise to anemia and does not yield to ordinary treatment; when pain is severe and obstinate; when pressure symptoms, especially retention of urine, occur; when the tumor is rapidly increasing in size; and generally when there is evidence that the health of the patient is becoming impaired, and that such impairment appears to be referable to the uterine fibroid.

11. **Hemorrhagic Pancreatitis.**—Munster cites a case which he thinks is of more than passing interest because the patient survived for ten days after the onset of the affection. He ascribes this unusual duration to the fact that four or five times a day saline injections were given alternately in either axilla, varying in quantity from half a pint to a pint.

Dublin Journal of Medical Science.

December.

15 Conjunction of Clinical and Pathologic Work in Medicine. J. F. O'Carroll.
16 *Case of Melanuria. T. G. Moorhead.

16. **Melanuria.**—Moorhead cites the case of a woman, aged 30, who was the victim of a typical melanotic sarcoma of the eyeball for eight years. Eventually she began to lose flesh and her abdomen and feet became swollen. On palpation of the abdomen hard nodules of about the size of a walnut could be distinctly felt all over the upper two-thirds of the abdomen and extending downward into the iliac fossa on both sides. On percussion the abdomen was found to be dull over its anterior aspect from the costal margin to below the level of the iliac spines on each side, except for a transverse area of resonance a couple of inches above the level of the umbilicus. The blood when tested for melanin gave a negative result, and no melanotic granules were present. The quantity of urine passed in twenty-four hours never exceeded twenty ounces in volume. When first passed it was of a deep amber or slightly reddish tinge, but after standing for a few hours it became darker in color, and ultimately almost black. It usually contained a deposit of urates of a deep brownish tinge. A slight trace of albumin was present, but no blood. At the autopsy it was found that the lungs were studded over the surface with a few small melanotic growths. The heart was normal, except for one small tumor, situated in the anterior wall of the left ventricle. The liver was enormous, weighing thirteen and a quarter pounds, and extending right down over both iliac fossæ. Its whole substance was infiltrated with black tumors, varying in size from that of a pea to that of a Tangerine orange. Many of them projected on the surface, and constituted the nodules felt by palpation through the abdominal wall. The liver substance between the masses was microscopically normal. The transverse colon lay in front of the liver in the position of the transverse area of resonance above alluded to. The stomach and intestines were normal, except for the fact that the small intestine was only 14 feet in length, and presented valvulæ conniventes right down to the ileocecal valve. The peritoneum did not contain any actual melanotic nodules, but in many places it was of a diffuse black color. The spleen contained two small nodules, and was normal in size. The kidneys, slightly fibroid, also contained a few scattered nodules, as did the suprarenal capsules. Both these last named structures were unusually large. The pancreas and abdominal lymph glands were normal. Two large ovarian cysts were present, floated up by ascitic fluid above the brim of the pelvis, their wall being constituted by dense black melanotic tissue, about one-fourth of an inch in thickness. The fluid contained within them was of a dirty brown color, but did not give the melanin reaction.

Annales de l'Institut Pasteur, Paris.

Last indexed XLV, page 1282.

17 (XIX, No. 9.) Purification of Residual Waters. Epuration des eaux résiduaires des villes et des Industries. A. Calmette.
18 *Surveillance of Drinking Waters.—Les méthodes employées pour surveiller les eaux destinées à l'elimentation. Interprétation à donner aux résultats obtenus. F. Dienert.
19 Trypanosoma Duttoni (Thiroux). Thiroux.
20 *Action des injections salines prophylactiques et thérapeutiques sur les cobayes soumis à l' inoculation intrapéritonéale de bacille typhique et de vibrion cholérique (research on guinea-pigs). L. Lubomoudrov (Moscow).
21 La recherche du bacille d'Eberth. Son importance au point de vue de la prophylaxie de la fièvre typhoïde. A. Braun.
22 (No. 10.) La déviation de l'alexine dans l'hémolyse. F. P. Gay (Brussels).
23 *Origine intestinale de la tuberculose pulmonaire. A. Calmette and C. Guérin.
24 *De la genèse des lésions pulmonaires dans la tuberculose. H. Vallee.
25 *Accidents paralytiques au cours du traitement antirabique. P. Remlinger (Constantinople).
26 *Sur la phagocytose "in vitro" de microbes pathogènes. Löhlein.
27 La formation des granulations dans les cultures des vibrions. G. Q. Ruata (Bologna).
28 (No. 11.) *Etudes expérimentales sur la syphilis. E. Metchnikoff and E. Roux.
29 Recherches sur la maladie expérimentale provoquée par l'inoculation de bacilles tuberculeux dégraissés (with fat removed). J. Cantacuzene.
30 Unicité de la dourine. G. F. Schneider and M. Bugfard.
31 *Présence de l'aldéhyde formique dans les produits gazeux de la combustion. Essais de désinfection par les fumées (smoke). A. Trillat.
32 *Fire and Smoke as Means of Defense Against the Plague.—Etude historique. Id.

18. **Surveillance of Drinking Waters.**—Dienert's article shows that the electric conductibility of a water is a good test for changes in it. He is convinced that the drinking water is not the sole means of the spread of typhoid fever, affirming that to date science has no authority for seeking an aseptic water for drinking purposes. Study of the electric conductibility and quantitative determination of the colon bacilli supplement each other and reveal changes in the water. A sudden increase in the amount of colon bacilli suggests the necessity for extra caution.

20. **Saline Injections in Prophylaxis and Treatment of Typhoid and Cholera.**—The experimental experiences related show that saline injections—either into the peritoneum or under the skin—contribute to the development in the organism, and especially in the peritoneum, of a leucocytosis and phagocytosis which oppose the development of the virus and sometimes destroy it completely when injected into the peritoneum. The saline injections prolonged the lives of the animals and enabled some to survive. After preliminary injections the animals were sometimes able to stand two and three times the fatal dose of the virus.

23. **Intestinal Origin of Pulmonary Tuberculosis.**—Calmette announces as the conclusions of his research that, in the immense majority of cases tuberculosis of the lungs is acquired by ingestion of bacillus-laden dust or other substances, not by inhalation. It is due to the entrance of virulent tubercle bacilli by way of the digestive tract, the same as glanders in the horse (in case of direct subcutaneous inoculation), is always the result of absorption of the glanders virus by the intestine. He does not agree with von Behring that tuberculosis in the adult is the result of the tardy evolution of intestinal infection contracted during infancy. His extensive research with young and adult goats has demonstrated that the older animals contract tuberculosis by way of the intestine more readily than do the young kids. The kids are also better protected than adults by their glandular apparatus to prevent the spread of the tuberculosis to other organs, especially to the lungs. An important conclusion from his research is the necessity for teaching consumptives not to swallow sputum. In the adult, bacilli make their way from the digestive tract into the lymphatic circulation in the mesentery without injuring the intestinal walls and without meeting with any effectual resistance on the part of the mesenteric glands. It is consequently evident that persons with bacilli in their sputa, who swallow the sputa, are constantly reinfecting themselves. These successive reinfections, he states, produce new eruptions of tuberculosis in the still intact parts of the lungs. It is necessary to supervise patients to determine the moment when they begin to expectorate bacilli, and to teach them never to swallow their sputum. These individuals should also carefully rinse the mouth with boiled or filtered water before each meal, and, if possible, after each expectoration. Bacilliferous dust is dangerous when swallowed.

24. **Origin of Pulmonary Lesions in Tuberculosis.**—Vallée is chief of the veterinary college at Alfort. He comments on the fact that in all species of animals the lung is the chosen tissue on which the tubercle bacillus settles by choice. In 43,000 tuberculous animals the lungs were found affected in 75 per cent. of all the localized cases, and in 100 per cent. of the general cases, while the liver was intact in 17 per cent. His experimental studies have also shown that ingestion of tubercle bacilli is the surest and quickest way to induce tuberculization of the glands connected with the lung. Also that the germs can pass from the digestive tract to the lungs or bronchial glands without leaving a trace of their passage in the intestinal mucosa or mesenteric glands or in any lymphatic vessel. He urges experimenting with young chimpanzees by feeding them with milk from tuberculous cows, in order to estimate the danger of hematogenic tuberculous infection of the air passages and connected glands.

25. **Paralysis After Pasteur Treatment of Hydrophobia.**—Remlinger has found 40 instances on record in 107,712 cases of treatment of hydrophobia in which paralysis followed the Pasteur injections. The paralysis finally subsided in all but 2 cases. Patients taking Pasteur treatment should be warned against getting chilled, as this seemed to be a factor in the paralysis in several instances. Extreme lassitude and weakness in the legs should suggest impending paralysis, and treatment should be suspended until these symptoms disappear.

26. **Phagocytosis in Test-tube.**—Löhlein found that phagocytosis proceeded normally even when the leucocytes (guinea-pigs) had been rinsed entirely free of all extraneous matter and were placed in test-tubes apart from all organic humors. Phagocytosis seems to be, therefore, an act of the cell, independent of the active principles contained in the organic humors. There are certain species of microbes (certain races of streptococci and of colon bacilli) which resist phagocytosis in this way. The results observed with them in the test-tubes parallel at every point the findings with these germs in the clinic.

28. **Infection of Monkeys with Syphilis and Effectual Preventive Treatment.**—In this fourth memoir Metchnikoff and Roux describe their latest experiments, carried on by the aid of the large prizes awarded to them in the last year or so. Of all the monkeys used in the tests the chimpanzees proved the most valuable for the purpose; the syphilis induced in them bore the closest resemblance to human syphilis, while there was no exception to the susceptibility of the animals. The lesions in the smaller monkeys are less characteristic, but these cheaper animals may serve for studying the attenuation of the virus and for research on prophylaxis and therapeutics. It is significant that Metchnikoff found the *Spirochæte pallida* in 23 out of 31 monkeys bearing syphilitic lesions. It might have been found in more of the monkeys, perhaps, if more sections had been stained. In regard to serum treatment, preventive or curative, the experiences related show that more powerful serums than those obtainable at present will be needed for positive results in this line. In preventing the development of syphilis after inoculation of the animals, various expedients were tried, heating the part to destroy the virus, washing with sublimate, and rubbing a mercurial salve into the part. None proved effectual except the latter, but with a salve containing 10 parts of calomel to 20 parts of lanolin they were able to prevent the development of infection after inoculation of the animal with syphilitic virus an hour before. Five monkeys thus treated with the calomel salve failed to show any signs of syphilitic infection after they had been inoculated with the virus which produced the characteristic lesions in the controls. Metchnikoff and Roux, therefore, consider it established that local treatment of parts contaminated with syphilitic virus will prevent the development of the affection. The next question is to determine the length of time in which this local treatment will prove effectual. They inoculated the tip of the ear of a macacus with virus from a chancre on the penis of a syphilitic. Twenty-four hours later they cut away the part of the ear which had been inoculated. No signs of syphilis developed, and when the animal was inoculated again in the eyebrows sixty days later, it developed typical syphilis. They regard this experience as demonstrating that the syphilitic virus had remained localized at the point of injection for the twenty-four hours. Two other animals in the same test died before definite results could be determined.

31 and 32. **Formic Aldehyd in Smoke.**—Trillat presents evidence to show that the amount of formic aldehyd generated in the smoke of burning sugar, molasses, damp straw, etc., is sufficient thoroughly to sterilize objects in prolonged contact. Smoke from these substances should be regarded as a gaseous disinfecting agent and utilized in practice. The aldehyd is formed in all kinds of incomplete combustion. This throws a new light on the practice of disinfection with smoke, which was in current use in the days of Hippocrates and prevailed until supplanted by chemical disinfection.

Berliner klinische Wochenschrift.

33 (XLII, No. 44.) Experimente über ascendierende Urogenital-Tuberkulose. von Baumgarten (Tübingen).
34 Vorkommen von Spirochæte pallida bei Syphilis. de Souza jun. and F. G. Pereira (Oporto).
35 Experimentelle Untersuchungen über den osmotischen Druck des reinen Magensaftes unter verschiedenen Bedingungen (osmotic tension of gastric juice). K. Sasaki.
36 *Hemolytic Blood Test.—Verfahren zum forensischen Nachweis der Herkunft des Blutes. M. Neisser and H. Sachs (Frankfurt).
37 Das Refraktiometer. A. Perlmann.
38 *Tuberkulose-Therapie. De la Camp.
39 (No. 45.) La petitesse relative du coeur et la predisposition à la tuberculose dans la croissance excessive (relative small size of heart and excessive growth in respect to tuberculosis). C. Bouchard.
40 Ueber Rassen-Differenzen von Typhus-Stämmen (stems). R. Friedberger and C. Moreschi.
41 Das doppel-seitige Empyem (bilateral). D. Hellin (Warsaw).
42 *Neuere Fortschritte auf dem Gebiete der Wasserreinigung (purification of water). E. Friedemann.

36. **Forensic Test for Origin of Blood Spots.**—Neisser and Sachs describe a simplification of the biologic test for blood which is so delicate that it reveals the human origin of even 1 in 1,000,000 c.c. of blood serum. It is based on Moreschi's announcement of the anticomplement action of prepared serum, which is the result of the interaction of a substance in the prepared serum with another substance in the normal serum of animals of the same species. Even the minutest amounts of the normal serum are sufficient to induce this anticomplement effect. The test was made with 1 c.c. of a 5 per cent. suspension of sheep serum, to which the amboceptor was added in the form of 0.0015 c.c. of serum of a rabbit preliminarily treated with ox blood, the rabbit's serum acting also on sheep's blood. The complement was in the form of 0.05 c.c. of fresh guinea-pig serum. The serum of a rabbit preliminarily treated with human serum was used for the antiserum. The combined action of the amboceptor and complement completely dissolved the blood corpuscles in the sheep's blood. Addition of 0.1 c.c. of serum from a rabbit preliminarily treated with human serum did not check the hemolysis, but no hemolysis occurred when a trace of human serum had been added to the suspension of blood. This arrest of the hemolysis occurs invariably when there is a trace of human serum in the suspension of blood, but hemolysis proceeds undisturbed when prepared serum of other origin is used. This test can be used to supplement the Uhlenhuth biologic test. After noting the precipitation, the fluid is allowed to stand for a time and then the blood plus the amboceptor is added. The presence or absence of hemolysis impresses even a lay observer as the fluid is decidedly red or colorless, according to the hemolysis.

38. **Treatment of Tuberculosis.**—De la Camp reviews the present status of the treatment of tuberculosis, coming to the conclusion that dietetic measures stand in the foreground, none of the serums yet made having won a permanent place in therapeutics, and cinnamic acid not having fulfilled expectations. In hemoptysis, internal administration of 20 gm. of gelatin, kept up for weeks, has proved the best measure in his experience.

42. **Purification of Drinking Water.**—Friedemann describes the various methods of purifying drinking water in vogue.

especially the Siemens and Halske plant for ozonizing the water. As the expense of ozonization is not higher than other methods, he thinks that this may be regarded as the best mode of disinfecting drinking water yet at our disposal. In the tests, even as many as 600,000 pathogenic or allied germs to the c.c. were completely destroyed during the ozonizing process.

Centralblatt f. Chirurgie, Leipsic.

Last indexed page 78.

43 (XXXII, No. 44.) *Bedeutung der Spinal-Analgesie für die Diagnose und Therapie der Erkrankungen des Anus und Rektum. F. Neugebauer.
44 (No. 45. *Clamp Forceps with Slit in Each Blade to Suture Through.—Quetschzangen mit Nahtrinnen bei der Verschlussnaht von Magen und Darm. Professor Graser (Erlangen).
45 (No. 46.) *Zur Technik der Enterotomie. A. Wolf.
46 Zur Technik der Blinddarm-Operationen (on cecum). J. Hahn (Mayence).
47 (No. 47.) *Zur Behandlung des Duodenal-Stumpfes bei der Resektions-Methode Billroth II. C. Brunner.
48 (No. 48.) Eine typische Erkrankung der Achilles-Sehne (Tendinitis achillea traumatica). A. Schanz.
49 (No. 49.) *Bemerkungen zur Anwendung des Jaboulay'schen Anastomosen-Knopfes ohne Naht (button without suture). O. Klauber.
50 (No. 50.) *Zur Behandlung des Duodenal-Stumpfes bei der Resektions-Methode Billroth II. Steinthal.
51 (No. 51.) Forceps to Open and to Remove Michel Clips.—Hebelklemme zum Oeffnen und Ausheben der Michel'schen Wundspangen. R. Jolly.
52 Zur subkutanen Verlagerung des Omentum (Talma operation). K. Elbogen.

43. **Importance of Spinal Analgesia for Diagnosis and Treatment of Affections of the Anus and Rectum.**—Neugebauer states that in 560 cases in his experience in which anesthesia was induced by lumbar puncture and injection, 79 were affections of the rectum or anus. He noticed that after spinal analgesia the sphincters relaxed to such an extent that the anus and the region above it were opened wide for visual inspection. This paresis or paralysis of the anesthetized parts is of great assistance in operating in this region. Spinal analgesia is thus an important aid in operations on the rectum or anus. In 3 recent instances he observed the spontaneous retrogression under spinal analgesia of incarcerated inguinal and femoral hernias.

44. **Clamp Forceps with Slit to Suture Through.**—Graser gives an illustration of his clamp forceps. The long slit in each blade allows the parts to be sutured with a straight needle through the slit, while the clamp is holding the stumps or parts compressed. The part below the clamp can be cut away and the suture conveniently taken through the long slit in the blades. The slit also enables the clamp to take a firmer hold on the parts. He uses similar clamp forceps in operating on the appendix and for provisional hemostasis in operating on the mesentery or broad ligament.

45. **Technic of Enterotomy.**—Wolf brings out the lowest distended loop and smooths its contents along, applying two clamps above and below. Between them he takes a purse-string suture, forming an oval about 1.5 cm. long. In the center of this oval an incision is made, and a long rubber tube is introduced and pushed in for a few cm. toward the mouth. The clamps are then removed, and the contents of the intestine issue through the tube and pass into a vessel at its end. When the intestine has thus been emptied the tube is slowly withdrawn by an assistant, and the suture thread is drawn tighter and tighter over the tube. It is finally tied as the tip of the tube emerges. A few Lembert sutures are taken over the first suture for better security. Not a trace of intestinal contents escapes to soil anything, and the whole procedure can be aseptic. It is also applicable when it is impossible to bring out the loop. The segment of the intestine can be isolated from the rest with curved clamps.

47. **Treatment of Stump of Duodenum.**—Brunner has had trouble from the stump of duodenum after resection of cancer of the stomach by Billroth's second method. He has found records of similar trouble in the reports from other clinics, and has consequently altered the technic somewhat. This modification completely avoids the danger of subsequent peritonitis from the stump of the duodenum. His modification is merely transferring the closed stump of the duodenum to an extraperitoneal position, that is, to the upper angle of the incision in the abdominal wall, outside the mobilized parietal peritoneum. In 10 cases in which the operation was concluded in this way the results have confirmed its advantages.

49. **The Jaboulay Button.**—Klauber relates a misadventure from the use of the Jaboulay button evidently due to defective construction of the individual button. His experience with it has been satisfactory in the few other cases in which he has used it. The button was illustrated in THE JOURNAL, volume xlii, page 1324.

50. **Treatment of Stump of Duodenum.**—Steinthal avoids trouble from the stump of the duodenum, after resection of the stomach, by tamponing the suture. Only one death occurred in 5 cases in which the tampon was applied, and the fatal outcome in this case was due to extraneous causes. The stump is left in its natural position and not pulled on as by the technic advocated by Brunner in paragraph just above. In case a fistula develops, Steinthal claims that it can be easily treated and cured.

Deutsche medizinische Wochenschrift, Berlin and Leipsic.

53 (XXXI, No. 48.) *Vaccination Against Foot and Mouth Diseases.—Die Schutzimpfung gegen die Maul- und Klauenseuche. F. Loeffler.
54 Disturbances in Albumin Metabolism During Sojourn at High Altitudes.—Ueber Störungen des Eiweissstoffwechsels beim Höhenaufenthalt. A. Loewy.
55 Die Pseudo-Tuberkel-Bacillen bei der Diagnose der Tuberkulose. D. Mezincesen (Bucharest).
56 *Klinische Beobachtungen bei Behandlung mit Neutuberculin (Bacillen-Emulsion) und Mitteilung eines Falles von mit Alttuberculin geheilter doppelseitiger Iris-Tuberculose. M. Elsaesser.
57 *Indikationen zur konservativen und operativen Behandlung der Gelenk-Tuberculose (of joints). C. Garré. (Concluded.)
58 Gallensteinileus ohne vorhergehende nachweisbare Störungen in den Gallenwegen (gallstone ileus without previous disturbances in billiary passages). Wiesinger.
59 *Behandlung des chronischen Mittelohr-Katarrhs (of middle ear). V. Urbantschitsch (Vienna). (Concluded.)
60 Ein neues Verfahren von Vibrations-Massage mittels des Trübschen Elektro-Magneten. Lichtenstein (Neuwied).
61 (No. 49.) *Rehabilitierung der Hand als geburtshilfliches und chirurgisches Werkzeug (the hand as instrument in obstetric and surgical work). F. Ahlfeld.
62 Ueber 2 durch Collargol-Injektion geheilte Fälle von Septicämie. A. Wassmuth.
63 Ueber Anaerobien im Eiter dysenterischer Leber- und Gehirn-Abscesse in Aegypten (in liver and brain abscesses in Egypt). H. Legrand.
64 Zur Kasuistik der inkarzerierten Zwerchfell-Hernie (of diaphragm). C. Boehm.
65 *Progress in Treatment of Ear Affections.—Fortschritte in der Therapie der Ohrenkrankheiten. Bachauer (Haug's clinic, Munich).
66 *Zelluloid als bequemes, durchsichtiges Schienenmaterial bei Unterkieferbrüchen (splint for fractures of lower jaw). P. Speiser.

53. **Vaccination Against Foot and Mouth Disease.**—Loeffler relates the successful results of protective vaccination of domestic animals against foot and mouth disease. An effectual and inexpensive method is by injecting under the skin .5 c.c. of a very virulent cattle serum mixed with .03 c.c. of fresh virulent lymph. After about twenty-five days .0033 c.c. of the lymph is injected again, and about thirteen days later .01 c.c. of lymph, and again after the same interval .04 c.c. lymph. The only inconvenience is the necessity for four injections. The technic is harmless and the immunity conferred is comparatively durable. This technic is used for vaccinating all the animals when the disease is known to be spreading in a district. When the disease has already invaded a herd, more energetic measures are needed, and for this he uses powerful horse serum for injections into swine and sheep, and cattle serum for injections into cattle, a single large dose of from .3 to .5 c.c. per kilo. Repeated doses of from 15 to 20 c.c. intravenously, every eighth day are preferable in case none of the animals in the herd is already affected.

56. **New Tuberculin in Pulmonary Tuberculosis.**—Elsaesser remarks that very few communications have appeared on the subject of new tuberculin, since Koch first described, four years ago, his experiences with it in treatment of 74 patients. Elsaesser has used it in the treatment of 76 patients, and his verdict is that it is liable to prove very effectual if administered in time, that is, during the early stages, while the infection is still purely tuberculous and there is no mixed infection. Even if its curative and immunizing action is not

accepted, the physician can administer it calmly for its virtue as a specific remedy against the fever.

57. **Treatment of Tuberculosis of the Joints.**—Garré reviews the various indications for conservative and operative treatment of tuberculous affections of the different joints. In his own experience, conservative treatment has given the poorest results when the knee joint was involved. He applied it in 100 cases, but in 46, after the total failure of conservative measures, an operation was decided on at last. Although nearly 90 per cent. were mild cases, yet, on the whole, the results were by no means satisfactory. In 185 cases treated surgically, the results were the complete cure of the tuberculous process in 94 per cent., and excellent functional results in 85.5 per cent. In 100 cases of tuberculosis of the foot, 32 of the patients were treated with conservative measures, with good results in only 14; the others all had to be operated on later. He now restricts conservative measures to recent cases, without a fistula, in otherwise healthy young persons; to cases in which one joint only is affected and the tendon sheaths are not involved, or in which there is no destruction of the bone or focus in the bone; and, finally, to patients of advanced years for whom amputation is the only alternative. Resection of the ankle has given excellent results in 80 per cent. of the 60 cases treated by this means. In 13 patients secondary operations were required to complete the cure. His patients were mostly children, and at this age conservative measures are most likely to fail while the results of resection are particularly favorable.

59. **Treatment of Otitis Media.**—Urbantschitsch concludes his articles with the remark that the general practitioner should pay more attention to these affections. If the ear were examined as systematically as the lungs, heart and other organs, otitis media would be detected in its early stages and prompt treatment would save the patients from the damage liable to follow neglected catarrh of the middle ear. The general health should be regarded in treating a chronic ear affection. Anything wrong in the intestines, uterus or vascular or other systems is liable to have an unfavorable action on the ear. Tonics, treatment of the uric-acid diathesis, of obstruction, etc, with general hygiene, may have a favorable influence on the ear affection. He is impressed with the great value of systematic exercises in hearing and the therapeutic application of electricity.

61. **The Hand as an Instrument in Surgery and Obstetrics.**—Ahlfeld wishes to have the hand restored to its old place in obstetrics and in surgery, and urges that it can be effectually disinfected for the purpose with hot water and alcohol. The main point is that the surgeon or accoucheur should be particular to cleanse his hands at once whenever they become soiled with infectious material. Gloves, he states, detract from the delicacy of touch, and they become cut or torn in fully half of all operations requiring sharp instruments. The fact of their being cut is all the more dangerous if surgeons and accoucheurs rely on the gloves and neglect to disinfect their hands thoroughly before commencing the operation. He thinks that it is entirely practicable to disinfect the hands of all pus-forming germs. Whether or not other germs may lurk on the hand is of comparatively little moment.

65. **Recent Progress in Treatment of Ear Affections.**—Bachauer refers especially to Laval's method of regional anesthesia for the outer ear. A 1 per cent. solution of cocain is injected to anesthetize the nerves innervating the part. The needle is inserted about .5 cm. in front of the tragus, to a depth of 1.5 cm., paralleling the meatus. To prevent injuring the temporomaxillary joint, the patient holds his mouth open. Half the fluid is injected at this point and the remainder between the cartilage of the auricle and the bone of the mastoid process, on a level with the meatus, introducing the needle for about 1 cm. The nerves involved are a branch of the auriculotemporal nerve in front of the ear and, behind, the auricular branch of the vagus. He sprays the skin with ethyl chlorid before introducing the needle. The same principle is followed by v. Eikens, but he reaches the two nerves by introducing the needle in the fissure behind the cartilage of the ear, just below the cartilage forming the floor of the meatus. He reaches the rear nerve from this point and then draws the needle back and works it in again to the front of the ear while the patient opens his mouth wide. He uses a .5 or 1 per cent. solution of cocain with .6 per cent. salt. Both he and Laval add a little adrenalin to the fluid. This regional anesthesia answers the purpose perfectly for opening furuncles and abscesses or for removal of small tumors, but the anesthesia is restricted to the outer ear. The middle ear is innervated by other nerves, for which v. Eiken proposes a more complicated technic. One of the more recent innovations in treatment is Sondermann's suction treatment with an aspirating apparatus which fits over the entire ear. He applies suction in this way two or three times a day for three minutes at a sitting. It aspirates all the secretions very thoroughly and can be entrusted to the patient. Politzer recommends the use of paraffin to close the defect in the mastoid after an operation. If the antrum has been opened, the paraffin should not be injected until after the opening has been closed by granulations. Excellent results from the use of paraffin in otology have been published by several writers. The latest innovation in treatment is the application of Bier's congestive hyperemia to suppurative ear affections. The congestion was induced by a padded cotton band about 3 cm. wide, hooked around the neck. A number of eyelets allow the constriction to be graduated to the proper point to induce slight swelling and a bluish-red color in the face. The band was applied for twenty-two hours each day, and even after the signs of inflammation had subsided, it was still applied for about eleven hours a day. The treatment is recommended especially for acute cases of otitis media. A free outlet for the secretions must be provided by paracentesis and, if necessary, a small incision should be made in the mastoid. The pain was arrested as soon as the band was applied in the 20 cases reported by Keppler from Bier's clinic. Heine's experience with 19 cases at Lucae's clinic was not so favorable.

66. **Celluloid Splint for Fractures of the Jaw.**—Speiser gives illustrations of a convenient, simple and transparent splint for fractures of the lower jaw. It is made of celluloid reenforced with a wire around the base of the two teeth on each side of the fracture, and another wire passed over the teeth and splint and under the first wire.

Mitteilungen a. d. Grenzgebieten d. Med. u. Chir., Jena.

Last indexed XLV, page 1612.

67 (XV, Nos. 3-4.) *Das Verhalten der Schilddrüse bei Infektionen und Intoxikationen (behavior of thyroid gland). J. Sarbach (Chaux-de-Fonds).

68 Ueber experimentelle venöse Stauung in der Hundeschilddrüse (congestion in dogs' thyroids). A. Lüthi (Ib.).

69 *Einfluss krankhafter Zustände auf den Iod- und Phosphor-Gehalt der normalen Schilddrüse (influence of morbid conditions on thyroid). S. Aeschbacher (Ib.).

70 *Thyreoditis simplex und toxische Reaktion der Schilddrüse (of thyroid). F. de Quervain (Ib.).

71 *Intestinal Disturbances After Operations on Stomach.—Darmstörungen nach Magenop. W. Anschütz (Breslau).

72 Beobachtung von bilateraler idiopathischer juvenile Osteoarthritis deformans des Hüftgelenkes (hip joint). F. Hesse.

73 Studien über den Blutlauf in den Hautvenen (circulation in skin veins). G. Ledderhose (Strasburg).

74 *Untersuchungen über den funktionellen Wert der sich nach Entkapselung neubildenden Nierenkapsel (new-formed capsule after decapsulation of kidney). J. H. Zaaijer (Lanz' clinic, Amsterdam).

75 Meteorismus und Kreislauf (circulation). Experimentaluntersuchung. E. Stadler and C. Hirsch (Leipsic).

76 Fall von schwerster Allgemein Infektion bei Cholangitis; Operation; Heilung. Adolph.

67. **Behavior of the Thyroid in Infections and Intoxications.**—This article opens the series of works on the thyroid issuing from de Quervain's clinic. Sarbach announces that the acute infectious diseases, especially scarlet fever, are liable to induce pronounced histologic changes in the thyroid, sparing only the connective tissue, but complete restitution in time is the general rule. The changes are esesentially the same for the various acute diseases and for alcoholism. Chronic tuberculosis entails proliferation of the connective tissue. No changes in the thyroid were observed with chronic nephritis, uremia or cachexia from cancer. Of the 67 thyroids examined, 25 were from children under 10 and 52 from adults.

69. **Iodin and Phosphorus in the Thyroid.**—Among the results of the research reported is the discovery that the thyroid in persons living in or near regions in which goiter is endemic contained more iodin than those of others elsewhere. Less iodin was found in the gland in youth and in old age than in middle life, and less in men than in women, while the thyroids of males contain more phosphorus. Acute infectious diseases, tuberculosis and alcoholism reduce the proportion of iodin in the gland, as also disturbances in the circulation. In the cachexia of cancer the iodin was found rather increased. Therapeutic administration of iodin, especially in the form of potassium iodid, increases the proportion of iodin found in the thyroid.

70. **Reaction of the Thyroid to Toxic Influences.**—The literature on this subject is reviewed by de Quervain, who emphasizes the distinction that should be made between thyroiditis from the effect of diluted toxins circulating in the blood, and simple thyroiditis from the effect of toxins elaborated in the gland itself. The latter are much more concentrated. His experience has confirmed him more and more in the assumption that there is some connection between the drinking water and goiter. Strumous degeneration of the thyroid gland in dogs is frequent in regions where goiter is endemic.

71. **Intestinal Disturbances After Operations on the Stomach.**—Anschütz remarks that patients are exposed to more kinds of dangers after operations on the stomach than on most of the abdominal organs. There is unusual liability to peritonitis, to pneumonia and to infarcts, to the vicious circle and to torsion of the implanted loop. At the Breslau clinic 6 cases of peptic ulcer have been observed, and within the last year 2 patients succumbed to sudden and fatal diarrhea at the seventh and tenth day of apparently smooth convalescence. Constipation is the general rule after a laparotomy, but diarrhea may occur without any known cause. In 7 cases the diarrhea was observed in from six to ten days after gastroenterostomy for cancer of the pylorus, proving fatal for 4 of the patients. Diarrhea was scarcely ever observed after gastroenterostomy for benign stenosis of the pylorus, but it almost inevitably occurred when for any reason a loop of intestine lower than from 40 to 50 cm. from the plica duodenojejunalis was selected for the anastomosis. In 60 cases of gastroenterostomy above this limit, no intestinal disturbances were observed except once, and they were then slight and transient. On the other hand, he has been able to find in the literature reports of a number of cases in which a loop 40 cm. below the cecal valve or still lower down was used, with resulting severe, sometimes fatal disturbances. In a case in his own experience, after a standard gastroenterostomy, symptoms of volvulus developed and a cancerous nodule was found and removed from the intestine, requiring a second anastomosis 1.2 meter below the plica. Diarrhea developed as anticipated, but it was finally conquered. In a third group of cases the stump of the stomach was united directly with the duodenum and diarrhea was observed in a few instances. One patient with ulcer recovered as also 2 with cancer, but a third cancer patient succumbed to the effects of the diarrhea. This patient was a woman of 45, recovering finely from the operation, when diarrhea appeared on the seventh day. At first it was not regarded as serious, and possibly might have been a little neglected. The evacuations became bloody and mucous, and finally became a constant stream; the clinical picture resembled that of severe dysentery or diphtheria of the intestines. An artificial anus was made to relieve the intestine, but too late; the patient died the same evening. The main cause for such mishaps, he thinks, is that the debilitated condition of such patients induces a predisposition to diarrhea. It is remarkable, however, that this predisposition to diarrhea does not manifest itself at first, but only when the patients are well on the road to recovery. He is convinced, for reasons which he enumerates, that the anesthetic has nothing to do with these intestinal disturbances. The main point in treatment is to act promptly and energetically at the first symptoms of diarrhea. When it is once well established, all treatment is powerless. Since this rule has been adopted in the clinic, no threatening diarrheas have developed. When there is an excess of hydrochloric acid he neutralizes it with an alkali; when it is deficient he supplies the normal amount. He also strives to empty the intestines of harmful contents by powerful purgatives, castor oil, calomel or Carlsbad salts, with astringents and possibly subcutaneous nutrient injections of sugar, salt and fat. The first indication of diarrhea is met by giving 1 gm. (15 grains) bismuth, with an astringent and 10 drops of opium, repeating this dose every one or two hours. If this is not successful, he increases the dose of opium, giving as much as from 80 to 100 drops of the tincture of opium. Some individuals require more than others to put the intestine at rest. If the diarrhea is checked a little the opium can be dropped and the astringent continued; but at every new fluid passage the attendants are instructed to give from 10 to 20 drops of opium. If there is a possibility that a loop of intestine too low down has been used by mistake, a secondary laparotomy should be done and conditions righted, or a wide enteroanastomosis made to enable the contents of the intestines to be mixed with the digestive juices more thoroughly. An artificial anus may prove of service if made in time. It is important also to learn the previous history of these patients before operating on the stomach. If a tendency to diarrhea exists, the patient should be supervised with exceptional care.

74. **Functional Value of New Capsule After Decapsulation of Kidney.**—Zaaijer has continued his experiment research on the effects of decapsulation of the kidney in rabbits. He found that decapsulation and scarification of the kidney are followed by the formation of a new capsule which ensured better circulation for the organ than is the case with the normal kidney. By the end of from four to six weeks both the arterial and especially the venous anastomoses were more numerous and effectual than in the normal capsule. There is usually more or less adhesion of the capsule observed in patients requiring decapsulation. Cutting these adhesions amounts to about the same as scarification of the organ in the rabbits. He is now engaged in research with decapsulation of the kidney in diseased animals and also in studying the conditions of the circulation in sound and diseased kidneys from cadavers.

Münchener med. Wochenschrift, Munich.

77 (LII, No. 46.) *Zur Technik der Lungen-Naht (suture). M. Tiegel.
78 Ueber die in die Plazenta enthaltenen Fermente. P. Bergell and E. Liepmann.
79 Ueber den Bau der Spirochæte pallida. K. Herxheimer and Löser.
80 *Zur kombinierten Skopolamin-Morphin-Chloroform-Narkose. Roith.
81 Ueber Mesenterial-Zysten. H. Adler. Id. J. Hahn.

77. **Suture of Lung or Other Soft Tissue.**—Tiegel has been making a study of the best technic for suturing the lung. His experiments were made in the Sauerbruch under-pressure air chamber, and he shows that the suture in the lung must be solid to avoid after hemorrhage, and also air tight to prevent leaking of air with consequent pneumothorax. He applied air pressure to the lung after suturing it and found that very few sutures were able to fullfil these conditions. He finally devised a technic which answers the purpose perfectly, the suture standing a pressure of 40 mm. This was accomplished by running a skewer, made of magnesium, into the tissue, on each side of the wound, and suturing the lips of the wound together, with fine silk, the running suture embracing the skewers. The best results were obtained when the silk was dipped beforehand in a solution of iron chlorid, which aided in promoting coagulation and thus filling up the stitch holes. The same technic is applicable to the liver, spleen, pancreas, gravid uterus and the heart, and also for inflamed or degenerated tissues in the intestine or stomach, and for closing a gaping wound in the peritoneum. He has found the technic fully as satisfactory when suturing the liver after a wedge-shaped excision. Payr's tests of magnesium have demonstrated its harmlessness for the tissues and its rapid absorption when its task is completed. He uses the magnesium skewers to stick into angiomas, and has reported a number of cures by this means.

80. **Scopolamin-Morphin Anesthesia.**—Roith has collected 3,709 cases in which this form of anesthesia was used, and estimates that the number actually has reached 4,000. He discusses the 18 cases in which death occurred, and states that in some of them the anesthetic could not possibly have been responsible for the death. In others exceptionally large doses were given. He has used it in 230 cases, and has been favorably impressed with its superior advantages. He mentions a number of minor points in the technic, and remarks that the sole disadvantage of the method is that the solutions used must be made fresh every time. The Korff and Kümmel technics are perfectly harmless, he thinks, and any one can be sure of success by following their directions. Mishaps are due to disregard of the results of others' experience. There is no danger in using hyoscin (scopolamin) in small doses, and the small doses are equally as effective as the larger ones. Repeated small doses of from .3 to .6 mg. are preferred by the psychiatrists. He gives .3 mg. of hyoscin plus 1 mg. of morphin an hour and a half before the operation, following this with .4 mg. of hyoscin plus 1 mg. of morphin half an hour before the operation. Early in the morning or the evening before the operation he gives a very small dose of some sedative to very excitable patients. Control tests with atropin-morphin given in 200 cases in the same way, he state, showed the superiority of the scopolamin-morphin technic. He always plugs the ears of the patient with cotton.

Riforma Medica, Naples.

Last indexed page 166.

82 (XXI, No. 31). *I disturbi della sensibilita cutanea nei tumore di milza e nelle splenopatie in genere. A. Signorelli.
83 *La ricerca del bacillo di Eberth nelle urine e sua importanza per la diagnosi precoce. P. Maione.
84 Sulla presenza dello spirocheta Schaudinn-Hoffmann nelle glandole inguinali dei sifilitici secondari. A. Risso and A. Cipollina.
85 *Azione e valore terapeutico della macerazione renale. F. Arrullani.
86 (No. 32.) Sulla elevazione subfebbrile degli anchilostomiaci. U. Gabbi.
87 Sulla coltura artificiale del bacillo di Hansen fuori dell'organismo umano. Gravagna.
88 *La distensione dello stomaco e dell'intestino nella diagnosi delle affezioni dello addome. G. Arnone.
89 Sali di potassio o sali di sodio (salts). S. Distefano.
90 11 siero antidifterico Behring nella cura della tubercolosi pulmonare. De Capoa.

82. **The "Spleen Point."**—Signorelli has found that the sensibility of the skin is altered in certain places whenever there is inflammation or other morbid process in the spleen. In case of acute tumefaction of the spleen or exacerbation of a chronic tumefaction, a zone of cutaneous hyperalgesia, he says, will be found corresponding to the fifth interspace on the left, near the left nipple. This is what he calls the "spleen point"; it may be a little to one side or above or below the nipple. In addition to this zone in front, there is frequently a corresponding zone at the fifth, sixth, seventh or eighth spinous process, and occasionally another in the side, corresponding to the sixth or seventh interspace on the median axillary line. The zones correspond to Head's sixth metameric segment, and throw light on the embryology and physiology of the spleen and aid in differentiating affections of this organ.

83. **Typhoid Bacilli in Urine.**—Maione found typhoid bacilli in the urine in 40 per cent. of his typhoid patients, but very rarely before the eighth day. In some instances, however, the bacilli were found in the urine three days before the agglutination test was positive. The Drigalski-Conradi technic reveals the presence of the bacilli in forty-eight hours.

85. **Raw Kidneys in Nephritis.**—Arullani describes the particulars of 10 cases of nephritis treated with a maceration of fresh pigs' kidneys, according to Renaut's method. (The technic was described in THE JOURNAL, page 340, of volume XLII, 1904.) Six of the patients were cured, 2 much improved, and 2 not benefited. The 2 failures occurred in cases of very serious chronic uremia. The cases mentioned as being much improved were likewise very severe and chronic cases. The patients cured had the acute forms of nephritis with edema. The rapidity of the cure was astonishing in two instances. There can be no doubt, he thinks, that the maceration has a directly beneficial action on the parenchyma of the kidneys, promoting diuresis and elimination of chlorids and urea, the effects of which are soon felt in the improved metabolism. It also acts on the blood pressure, reducing it to normal limits. No unpleasant by-effects were noticed in any of the cases. This treatment can be combined with ordinary measures without harm.

88. **Distension of the Stomach and of the Intestine in Diagnosis of Abdominal Affections.**—Arnone concludes this comprehensive article with a three-column summary of the various diagnostic points which he has been studying. He shows in a number of illustrations the changes in the shape, size and position of the stomach or intestines in case of a tumor in them or in any adjacent organ. The changes are characteristic, and have considerable differential value, especially when the effects of insufflation of the stomach or intestine are compared with normal findings.

Books Received

Acknowledgment of all books received will be made in this column and this will be deemed by us a full equivalent to those sending them. A selection from these volumes will be made for review, as dictated by their merits, or in the interests of our readers.

THE EDINBURGH STEREOSCOPIC ATLAS OF ANATOMY. Prepared under the auspices of the Department of Anatomy of the University of Edinburgh, by Professor J. R. Cunningham, M.D. (Edin. et Dubl.), D.Sc., LL.D. (Glasg. et St. And.), D.C.L. (Oxon.). Edited by David Waterston, M.A., M.D., F.R.C.S.E., F.R.S.E., Lecturer Senior Demonstrator in the Department of Anatomy, Edinburgh University. In Five sections, 250 stereographs. Section 2—Thorax. (The complete set with stereoscope, $50.) Imperial Publishing Co., No. 27 East 22d St., New York.

A MANUAL OF MATERIA MEDICA AND PHARMACOLOGY, Comprising all Organic and Inorganic Drugs which are or have been official in the United States Pharmacopeia, together with Important Allied Species and Useful Synthetics. Especially Designed for Students of Pharmacy and Medicine, as well as for Druggists, Pharmacists and Physicians. By D. M. R. Culbreth, Ph.G., M.D. Fourth Edition, Enlarged and Revised, with 487 Illustrations. Cloth. Pp. 976. Price, $4.75. Philadelphia: Lea Brothers & Co., 1906.

A MANUAL AND ATLAS OF ORTHOPEDIC SURGERY, Including the History, Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis and Treatment of Deformities. By J. K. Young, M.D. Illustrated with over Seven Hundred Photographs and Line Drawings, mostly from original sources. Half morocco. Pp. 942. Price, $12.00. Philadelphia: P. Blakiston's Son & Co., 1905.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS, or the Action of Drugs in Health and Disease. By A. R. Cushny, M.A., M.D. Fourth Edition. Thoroughly Revised. Illustrated with 52 Engravings. Cloth. Pp. 752. Price, $3.75 net. Philadelphia: Lea Brothers & Co., 1906.

MANAGEMENT OF A NERVE PATIENT. By A. T. Schofield, M.D., Author of "The Unconscious Mind," "The Force of Mind," "Unconscious Therapeutics," etc. Cloth. Pp. 267. Price, $1.50. Philadelphia: P. Blakiston's Son & Co., 1906.

URINARY ANALYSIS AND DIAGNOSIS. By Microscopical and Chemical Examination. By L. Heitzmann, M.D. Second Revised and Enlarged Edition; 131 Illustratons. Cloth. Pp. 319. Price, $2.50 net. New York: William Wood & Co.

DEPARTMENT OF COMMERCE AND LABOR Bureau of Statistics. No. 5. Series 1905-06. Monthly Summary of Commerce and Finance of the United States, November, 1905. Paper. Washington: Government Printing Office, 1905.

FIFTY-EIGHTH ANNUAL REPORT OF THE TRUSTEES of the Massachusetts School for the Feeble-Minded at Waltham, for the Year ending Sept. 30, 1905. Paper. Pp. 46. Boston: Wright & Potter Printing Co., 1906.

A COMPEND OF DISEASES OF THE SKIN. By J. F. Schamberg, A.B., M.D. Fourth Edition, Revised and Enlarged, with 108 Illustrations. Cloth. Pp. 299. Price, $1.00. Philadelphia: P. Blakiston's Son & Co., 1905.

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